Metascience as Self-Knowledge: Hegel's Philosophy of Science in Light of the Question of Naturalism

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Introduction

"We forget too easily that a thinker is more essentially effective where he is opposed than where he finds agreement".[1] What Martin Heidegger thought of the thinker also holds, besides for himself, for Georg Wilhelm Friedrich Hegel: one forgets too easily that Hegel is more essentially effective where he is opposed, and one of the fields in which Hegel is constantly opposed is the so-called philosophy of science. Philosophers of science tend to reject Hegel's notion of science so vehemently that it has become common to deny any kind of philosophy of science in Hegel's system. Even some of the most dedicated of Hegel's recent commentators who do identify a truly epistemological discourse in Hegel misunderstand the core ideas of Hegel's philosophy of science or dismiss them. Due to the naturalistic conception of science which dominates recent Hegelian scholarship as well as philosophy of science, it seems impossible to consider Hegel as a proper philosopher of science. Where science only means first-order empirical natural science, Hegel's conception of metascience as the analysis of generic forms of self-knowledge seems to have no validity and even to be an 'inverted' false conception. To a certain degree, Hegel still remains a *persona non grata* in philosophy of science. In this field, the old belief about Hegel still seems to hold, namely that Hegel is nothing but a mad philosopher of history who "confused himself with god", like other "genies", believing that he was standing at the "end of history".[2]

Hegel himself conceptualizes his first major work *Phenomenology of Spirit* as "science", namely the science of spirit's self-experience. The task

[1] In "What Is Called Thinking?", Heidegger, 1968, pp. 39f.
[2] Rosen S., 1974, p. 130.

of this scientific project is to scientify philosophy. In the broad sense of the term, Hegel can thus be considered the 'philosopher *of* science' *par excellence*: his conception of philosophy of science is a version of *noesis noeseos*, in the form of 'conceptual realism', as Robert Brandom put it, which makes explicit that any metascience yet to come is only possible as the non-formalistic logic of self-cognition. Whether Hegel develops a philosophy of science, and indeed which one, depends on the meaning we attribute to the term 'philosophy of science'. The positivistic historiography of philosophy of science commonly begins with Auguste Comte or William Whewell, moves forward to Bertrand Russell, Moritz Schlick and the Vienna Circle, and on to Karl Popper and Thomas Kuhn – all self-appointed anti-Hegelian philosophers of science. Not only does this common historiography not begin with Hegel, it also forgets that Hegelian thought had a crucial effect on the development of this tradition of philosophy of science. Hegel can be read, as I suggest in this work, as one of the grounding fathers of the project of modern philosophy of science.

The naturalistic-positivistic approach fears that Hegel's 'speculative' philosophy aims at increasing the extension of the term 'science' or at widening its scope to include all disciplines of the humanities without preconditions. Hegel himself, however, already notices the still-pertinent confusion about the demarcation of science in his younger years, as he ironically notes concerning the status of technical knowledge: "What isn't called science nowadays! 'The terrace gardener or everything about the terrace art'. The same goes for peat mining, chimney construction, cattle

breeding etc. All considered as science".[3] Just like we ask whether neuroscience is a science in the strict sense, Hegel also wonders whether anatomy deserves to be called science. He raises arguments against the *naturalistic doxa of science* that takes science to be empirical-taxonomical knowledge oriented at external objects of perception. The naturalistic philosophy of science contains a self-destructive, skeptical thought about thought. It thus runs the risk of scoring an 'own goal'. In order to go beyond this self-defeating doxa and to be able to come to think about science in its fundamental meaning as a universal self-relational concept, it is advisable to question Hegel's conception of science in view of the claims of the naturalist theory of science.

This work deals therefore with the question of whether Hegel holds any kind of philosophy of science, and if so, how it can be characterized and what its position is towards naturalism. The merit of the naturalism question will show itself to consist in tackling, among other things, the basic questions about the nature of nature and the nature of mind. In the following, the question of naturalism in Hegel shall be elaborated through a more concrete description of the background from which the debate on Hegel's philosophy of science has emerged.

It is observable that, since Richard Taylor's *Hegel* (1975), there is an ongoing renewal of Hegel's thought within post-analytic Anglophone philosophy, a renewal which amounts to more than just an expression of interest in Hegel, more than a mere 'Back to Hegel' movement. After Taylor, who has become known, along with Ralf-Peter Horstman, as the

[3] In Hegel's Wastebook from 1803-1806 (2/541). Hegel alludes to the book of Friedrich Meinert from 1803: *Der Terrassierer oder die Kunst, Terrassen und andere abgedachte Erdwände mit Erde, Rasen und mit trockenem Mauerwerke zu bekleiden* (ed. M. Amati, Weimar: Gädicke). Meinert himself, however, does not use the word 'science' but rather speaks of "art" (*Kunst*) in the sense of craft and skill. Hegel also targets Albrecht Daniel Thaer's conception of agronomy as *Agrarwissenschaft*, 'agricultural science'.

representative of the rather traditional-metaphysical reading of spirit monism in Hegel, it was the so-called non-metaphysical interpretations of Terry Pinkard, Robert Pippin and Paul Redding, among others, as well as the revised-metaphysical interpretations of Robert Stern and Stephen Holugate, which essentially contributed to new forms of the Hegelian renaissance. This revival, reflected in the works of John McDowell and Robert Brandom, is striking, because the self-declared analytic philosophy has essentially begun as an anti-Hegelian movement with the strong anti-idealist critique of Bertrand Russell and George Edward Moore concerning what they regarded as Hegel's untenable metaphysical claims about the human mind. Hegel's revival can be understood as the result of an enduring self-correcting movement of analytic philosophy away from itself, away from positivism and the belief in immediate knowledge by acquaintance. The consciously self-improving move from a total negation of Hegel's epistemology to an intense occupation with it can be conceived as one more critical step in the *Selbstaufhebung* of analytic philosophy towards a post-analytic phase that should lead to new non-positivistic and non-naturalistic readings of Hegel.

This disenchanting and still incomplete movement towards Hegel began with the gradual softening of the claims of 'logical positivism' to 'logical empiricism', a critical act that laid the ground for the three-headed rebellion against positivism led by Popper, Kuhn and Quine. It is the latter who, surprisingly, helped to awaken initial Hegelian thoughts in the pragmatist-naturalist heads of Richard Rorty and Wilfrid Sellars, who both inspired the 'Pittsburgh Hegelians', Brandom and McDowell. Sellars was touched by Quine's half-Hegelian holistic spirit, as he criticized the

Carnapian "myth of the given".[4] Sellars was the first to praise Hegel publicly as the best adversary of the notion of "non-mediation" within epistemology, and he was also the first to name his project explicitly "incipient Méditations Hegeliènnes".[5] In the spirit of Hegel's argument against the presumed *Unmittelbarkeit* of knowledge, Sellars claims that "one couldn't have observational knowledge of *any* fact unless one knew many *other* things as well. [...] the point is specifically that observational knowledge of any particular fact, e.g. that this is green, presupposes that one knows general facts of the form *X is a reliable symptom of Y*".[6] In a similar way to Hegel, Sellars concluded that acknowledging this problem of the illusory given "requires an abandonment of the traditional empiricist idea that observational knowledge 'stands on its own feet'"[7] and that the traditional empiricists merely "*presuppose* knowledge of general facts of the form *X is a reliable symptom of Y*",[8] even before they really come to prove it. Famously, McDowell also acknowledges that human perception is conceptually informed. Yet it was Hegel who laid the ground for this idea of the theory-ladenness of experience.

The attack on the mere givenness of observational knowledge, which was in fact an analytical reformulation of Hegel's argument against the idea of epistemological *Unmittelbarkeit*, has thus prepared the ground for Hegel to become an acknowledged thinker in Anglophone philosophy. It is a debatable issue, however, whether the principal of reliability is completely sufficient for a theory of science, because, as is well-known, a thermostat can be reliable as well, and yet has no concept of its work and hence no

[4] In Sellars' *Empiricism and the Philosophy of Mind* from 1956 (1997, p. 13).
[5] Ibid., p. 45.
[6] Ibid., p. 75.
[7] Ibid., pp. 75f.
[8] Ibid., p. 76.

normative free realm of making rules. This point is only emphasized by the very latest Hegel scholarship which has just begun to deal with the role of the collectively evolving norms-giving *Geist* within philosophy of science. The post-analytic neo-Hegelianism does not mirror a complete return – or rather progress – to Hegel, since it still downplays some of Hegel's ideas concerning *Geist* and the possibility of truly self-reflective *Wissenschaft* to an agreeable level. Redding rightly argues that "Hegel's critical response to 'metaphysics' *qua* critique of *metaphysical positivism* differs from those responses to traditional metaphysics that have been more common in analytic philosophy – 'naturalism' and 'quietism' – and that are reflected in the Sellarsian neo-Hegelians".[9] It is thus worth keeping in mind that the Anglophone Hegel-renaissance is particularly interesting with regard to the progress achieved in the understanding of Hegel's philosophy of science, yet it remains partly open to suspicion due to its strong tendency towards formal logic, on the one hand, and its strong positivistic-naturalistic tradition that clings to a behavioristic conception of knowledge, on the other hand. Human knowledge, properly understood, is not reached just by "enactive perception", which constitutes in effect only animal cognition, as Alva Noë has recently suggested, but rather by a phenomenological and logical training of consciousness, which produces self-conscious forms of knowledge, as Hegel understands it.

When dealing with Hegel, it is necessary to say something about the understanding of old philosophical texts. It is trivial to claim that the understanding of philosophy is affected by the prevailing views of a certain time, which also implies that the judgment of the merit of a philosopher is subjected to the philosophical zeitgeist of the judge. But this does not mean that the merit of any philosophy is positive only if it matches the current

[9] Redding, 2007, p. 20.

views. The same holds for Hegel's philosophy of science: in order to understand it, one ought not just to historicize or analyze it with 'old' categories, just as one ought not to domesticate or decline it according to dominant contemporary schools of thought. The non-historicist Hegel commentator does not envisage the time that has passed since Hegel's death, the *Zeitabstand*, as a "yawning abyss" that has to be overcome, but rather, as Hans-Georg Gadamer says, as "a positive and productive possibility of understanding".[10] Gadamer's hermeneutics can supply here guidelines to the heart of the matter. Exploring Hegel's philosophy of science can show us, not only the way Hegel as one person comprehends the desirable scientific quality of philosophizing, but also the potential horizon for understanding the current endeavor of so-called 'philosophy of science' and its origins.

Concerning the method of interpretation, it is worth noting that, in non-immanent Hegel research, the positions of Kant and the so-called German idealists are considered too often, and are too much at the forefront. The reason for this is that, methodologically, it is both common and easier to explain Hegel's ideas purely historically in light of his predecessors and in terms of how their ideas are retroactively configured in Hegel's allegedly all-comprehensive system. Such inquiries tend to begin with descriptions of Hegel as post-Kantian, post-Fichtean etc. The whole discussion is sometimes stuffed with chains of endless comparisons. In this tradition of interpretation, it has already become commonplace to claim that almost none of Hegel's ideas are original insofar as they all stem directly from his predecessors, and that Hegel has only "summarized and integrated" them into one system, quasi synthesized them into one incompressible

[10] Gadamer, 1990, p. 302 (1960, p. 281).

logocentric whole.[11] One should note, however, that Hegel shows himself to be quite aware of such reproach when he complains about the plagiarism accusation against the history-aware Plato: "Plato's philosophy often seems to be merely a clearer statement of the doctrines of the older philosophers, and hence it draws upon itself the reproach of plagiarism".[12] Through careful examination of Hegel's writings, one realizes that Hegel does not simply redescribe previous philosophers and so the main question of the systematical inquiry is not only what Hegel borrows from others, but what exactly is being negated or modified, and why or how.

Finally, the purpose of my inquiry, and this must be stressed from the outset, is not the discussion of every detail in Hegel's philosophy of science as this would exceed the scope of this work. Furthermore, the space does not allow for the presentation of the whole reception of Hegel or to explore all the views in philosophy of science. The literature about Hegel's conception of science is chosen in light of the guide question, as the state of the art, as the "appearing knowledge" about Hegel.

The investigation will proceed thus as follows:

In order not to begin with presupposing the theme and begging the question, we shall begin chapter 1 with questioning the very existence of a genuine 'philosophy of science' in Hegel. We will have to deal with hermeneutical and historicist arguments against the existence of Hegel's philosophy of science in order to pave the way for our object of inquiry.

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[11] Beiser, 2002, p. 10. This is what Beiser argues, while listing all the Hegelian 'stolen' themes: "There is not a single Hegelian theme that cannot be traced back to his predecessors in Jena, [...]. So many ideas that are seen as uniquely Hegelian—the dialectic, immanent critique, the synthesis of Fichte and Spinoza, the absolute as the identity of identity and nonidentity, the importance of history within philosophy, self-positing spirit, alienation, the unity of community and individual liberty—were all commonplaces in Jena before Hegel came there in 1801".

[12] Hegel, 1995, p. 166; 18/190.

These arguments range from the absence of the explicit title ‘philosophy of science’ to the reproaches that to ascribe to Hegel ‘philosophy of science’ is a mere anachronism, for the whole history of modern philosophy of science seems to be nothing but ‘anti-Hegelian’. The motive behind such arguments is a common and insufficient conception of science as an objects-oriented empirical endeavor directed at a particular realm of beings. This anti-speculative view blocks out another alternative conception of science as a self-relational and self-critical project of metaindividual socio-historical knowledge. The aim of our phenomenological-systematic exposition is to discuss the differences between these two conceptions of philosophy of science and to prepare the ground for the debate on Hegel’s naturalism. The naturalistic reading of Hegel is itself unconsciously affected by the positivistic understanding of science as natural science.

Therefore, chapter 2 outlines the recent debate about Hegel’s naturalism by presenting the fundamental views alongside their queries. The discussion of the naturalistic arguments is not designed to be an external reflection on them merely from the outside, but an immanent process of making sense of them through gradually integrating the different naturalistic points of views – together with their deficiencies – into one coherent system of thought, as much as is possible. The inquiry shall begin with clarifying the key features of scientific naturalism and then move towards Hegel’s possible response to naturalism. The naturalism debate reflects a problematic position at the intersection between philosophy of science and philosophy of mind, namely the *naturalization of the mind*, which is supposed to explain the ‘natural limits’ of epistemology. The naturalistic discourse that informs some readings of Hegel exposes the absence of hermeneutical and dialogical methods of commentary as well as the insistence on the trivial understanding of Hegelian key concepts.

Chapter 3 then contains the analysis of Hegel's concept of science, beginning with the views Hegel rejects: science as descriptive knowledge by acquaintance, science as a purely empirical enterprise, science as formal rationalizing and the Kantian conception of science. We will proceed with the interpretation of Hegel's notion of science as the process of a self-knowing spirit directed at truth and 'coming back to itself'. We will dwell on the difficulties stemming from the translations of *Geist* and *Wissenschaft*, as well as on the problems that Hegel's conception raises, such as the problem of how to begin with a scientific system and the question of realism. We will end by analyzing Hegel's possible response to a naturalistic-Darwinist concept of science, the Kuhnian, which is essentially paradigmatic to the postmodern philosophy of science.

In chapter 4 we will present Hegel's task of scientifying philosophy, its origins and several main criticisms. In order to better understand this task, we will consider its romantic and idealist triggers, namely Jacobi, Fichte, and Schelling, as well as some of its systematical Greek origins in Plato and Aristotle. Again, this is not a historical inquiry, since these thinkers are not understood solely as the chronological predecessors of Hegel in such a way that it is only the aspect of time that matters to the logic of the argumentation, but they are actually taken as cooperative contributors to Hegel's concept of science, as cofounders. Such investigation does not merely reconstruct the arguments of theses authors as some kind of distant 'background' to Hegel. Rather, what matters is the disclosure of the logical space wherein their arguments subsist and of how they relate to Hegel's thought. We will thus confront contradictions, corrections, affirmations and negations of positions**.** On this final path, we will arrive at some significant post-Hegelian criticisms of Hegel's task: on the one hand, the declaration that 'philosophy is not science', and on the other that 'philosophy is dead'. The serious doubt about philosophy as science can reveal the conceptual

origin of the humanity crisis reflected in the seemingly absolute dichotomy between science and the humanities and the total rejection of any ‘scientificity’ in philosophy. It can be shown that philosophy of science, correctly understood, more than being directed at some ideal scientists, is a self-critical praxis of philosophers and hence a possible form of doing philosophy of philosophy, a methodological reflection on generic theoretical and practical forms of self-thinking.

1. Is there a philosophy of science in Hegel's 'system'?

The question of whether it is possible to count Hegel as a proper philosopher of science, and in what sense, has become more and more relevant in recent decades because in our times philosophy of science has attained the status of 'first philosophy', competing perhaps only with philosophy of language. In the following, I will argue that the common claim that Hegel's system lacks any kind of philosophy of science does not do justice to Hegel's philosophy, and that he can even be read as one of the pioneers of critical continental philosophy of science. Hegel's unique notion of science and his dialectical thinking gave inspiration to the development of the modern humanities, the *Geisteswissenschaften*, including the social sciences and political sciences, as well as the later critical theory of science advocated by the Frankfurt School and the feminist philosophy. Our investigation is not supposed to beg the question by presupposing the content of what it explicates, and so, before discussing the main features of Hegelian philosophy of science, the inquiry is confronted with the question of the very existence of philosophy of science in Hegel: does he develop a philosophy of science?

The first chapter therefore analyzes three obstacles that seem to rule out a philosophy of science in Hegel. The first is the total absence of the explicit term 'philosophy of science' in Hegel's writings, which seems to cause a formal hermeneutical problem. Secondly, even if one were to ignore this problem, the question remains as to what kind of philosophy of science we mean. There are at least two distinguished forms of philosophy of science: the more prevailing positivistic-descriptive, and the less considered genuinely metascientific and hence philosophic. The first, at

least, appears to be absent in Hegel, and so to talk about his philosophy of science would seem to some to be nothing but anachronism. Finally, this problem is compounded by a sophisticated kind of historically motivated skepticism, which receives concrete intensification through sporadic arguments about why Hegel's particular works do not seem to contain 'proper' philosophy of science.

1.1 The formal hermeneutical problem

1.1.1 The absence of an explicit 'philosophy of science'

Hegel does not seem to have an 'official' philosophy of science. He never uses this term explicitly. He never writes the three words philosophy-of-science one after the other in this order. He never mentions the expressions *Philosophie der Wissenschaft* or *Wissenschaftsphilosophie.*[1] Neither does he ever mention the related terms 'theory of science' (*Wissenschaftstheorie*) or 'theory of knowledge' (*Theorie des Wissens*). Evidently, Hegel did not coin the term 'philosophy of science', and as is well known, this term was not in use in his time in this form.

However, things can exist before their names. The coining of terms does not simply create the things named by them. There are many reasons to think that Hegel could have synthesized the concept 'philosophy of science': he has no hesitation in making use of concepts in the form 'philosophy of x'. His works have titles like *Philosophy of Right* and subtitles like "Philosophy of Nature" and "Philosophy of Spirit". His lectures were entitled "Philosophy of History", "Philosophy of Art" and "Philosophy of Religion". In *Lectures on the History of Philosophy* there

[1] I will use the translation of *Wissenschaft* as 'science', but I will arrive at its problematization in 3.3.1.

are titles such as "Philosophy of Plato" and of other persons,[2] "Philosophy of Stoicism" and of other epochs,[3] and such concepts as "philosophy of theology"[4] and "philosophy of consciousness".[5] In view of so many philosophies – the many "circles" within the "one circle" – 'philosophy of science' is indeed absent, but not impossible. Furthermore, Hegel does not hesitate in using the word 'science' and its derivations in the titles of his three major published works: *System of Science*, *Science of Logic* and *Encyclopaedia of the Philosophical Sciences*. Science is one of Hegel's main themes, and he especially expands on his conception of science in the "Preface" and "Introduction" to the *Phenomenology of Spirit*, the *Science of Logic* as "pure science", and the *Encyclopaedia* as the presentation of the various sciences.

These observations suggest that 'philosophy of science' could have at least potentially existed in Hegel's world of thoughts as he frequently uses the concepts 'philosophy of x' and 'science'. After all, the mere fact that a specific expression is not mentioned by an author does not necessarily mean that the author does not express thought on this topic in different terms, or that we cannot know anything about his thought on the topic. For this reason, one can also reasonably speak of "Hegel's philosophy of language" or "Hegel's philosophy of action", although he obviously did not coin these terms.[6]

The formal absence of the term 'philosophy of science' in Hegel's time can be further questioned, because, contrary to common thought, certain

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[2] 19/11.
[3] 19/255.
[4] 20/40.
[5] 18/214.
[6] Cf. Vernon, J., *Hegel's Philosophy of Language* (London: Continuum International Publishing Group, 2007) and Stepelevich, L., *Hegel's Philosophy of Action* (Atlantic Highlands, N.J.: Humanities Press, 1983).

theoretical roots of the future discipline 'philosophy of science' already existed. The term "*la philosophie des sciences*" is used for the first time by Denis Diderot in the entry "philosophy" in his *Encyclopedia* (1765), where he states that all particular sciences and arts have their own philosophy which supplies them with foundations.[7] Similarly, Auguste Comte would speak of the "necessity of philosophy of the sciences in general" (1819), focusing however on the particular natural sciences and sociology.[8] In the German scholarship, Carl Christian Erhard Schmid was the first to present the outlines of an a priori science of the "rules of the sciences" in his 1794 Kantian essay *Erste Linien einer reinen Theorie der Wissenschaft*.[9] Famously, and more significantly to Hegel, Johann Gottlieb Fichte published in this year his "doctrine of science" (*Wissenschaftslehre*), the "science of science". Hegel has perhaps deliberately refrained from using this term in order to keep some distance from Fichte.

Although Hegel himself does not adopt any of these designations, he does use the concepts of "science of philosophy" and "philosophical science". Thus, in order to decide if Hegel has something like philosophy of science, we should consider the general meaning of the term. In the next section we will discuss two possible meanings.

1.1.2 Two meanings of philosophy of science

As previously mentioned, the fact that Hegel does not explicitly mention the words 'philosophy of science' does not necessarily mean that he does not deliberate on science. Whether Hegel's system contains 'philosophy of

[7] Cf. *Historisches Wörterbuch der Philosophie*, vol. 12, p. 974.
[8] In *Essais sur la philosophie des mathématique*, 1819/20 (cf. *Historisches Wörterbuch der Philosophie*, vol. 12, p. 979).
[9] Originally in *Philosophisches Journal für Moralität, Religion und Menschenwohl* 3 (cf. *Historisches Wörterbuch der Philosophie*, vol. 12, pp. 973f).

science' depends on what 'philosophy of science' means. The meaning of the term 'philosophy of science', like other terms in the general form of 'x of y', can be understood in various ways, contingent on how one understands philosophy and science, as well as on how the semantics of the 'of' determines the relation of philosophy to science each time. Even if, for now, 'philosophy' and 'science' cannot be fully determined, I would like to suggest two main meanings of which Hegel negates the first and approves the second; namely a theory about object-oriented science and a theory about self-knowledge. Let us examine how each meaning depends on a different conception of science.

The first way of understanding 'philosophy of science' is the more popular: it takes 'science' to be a system of 'particular sciences'. It is therefore an object-oriented inquiry into the nature of the particular objects which are, by definition, other than 'us' as subjects. So understood, the objective objects are 'external' to us. This view leads to a philosophy of science that emphasizes the term 'science' by using the *genitivus obiectivus* to refer to science as a given object of a philosophical inquiry. Accordingly, such a philosophy of science designates a subdiscipline within philosophy, and its endeavor is equivalent to constructing a general theory of the particualr sciences. Commonly, it designates the theoretical reflection on the definition of science by setting a criterion of "demarcation", as Karl Popper called it. Such a theory is an attempt to reflect on the foundations that justify science, and it deals with the scientific method and the purpose of science regarding truth.

The second way of understanding 'philosophy of science' has become rare: it takes science to be the knowledge of oneself about oneself as a whole, i.e. self-knowledge, the knowledge about what knowledge is. This view leads to a philosophy of science that emphasizes the term 'philosophy' by using the *genitivus subjectivus* to refer to a philosophical

inquiry that science performs with itself and does to itself, a ‘philosophical science’. Such a version of philosophy of science exists at least since the Aristotelian conception of *nóêsis noêseôs*, the self-thinking thought. It also corresponds to Fichte’s designation of pure philosophy as “science of science” and, *mutatis mutandis*, to Hegel’s idea of the self-knowing spirit. In contrast with common theory of science, this project takes philosophy to be the superlabel for all the sciences and can be understood as philosophy of philosophy. Hegel gives expression to this in his epochal task of making philosophy more scientific. The endeavor of philosophy of science is to develop an appropriate version of scientific philosophy.

It is worth noting that, in any event, the form ‘philosophy of x’, if it is meaningful, indicates a certain semantic gap between philosophy and x: philosophy is not identical with x, so that there is an ontological difference between philosophy and x. The suspicion arises that Hegel presupposes an identity between philosophy and science, an identity which existed before his time and which he would have liked to reconstruct and restore. It is probably for this reason that Hegel could not use the term ‘philosophy of science’, as he ultimately believed that philosophy *is* to some extent science. Hegel’s ‘absolute’ philosophy of science is the attempt to conflate the two different perspectives of theory of science and self-knowledge into a *fundamentum inconcussum*, one that is not merely a theory of animal cognition, but a real epistemology, a self-conscious science.

So in what sense can we speak of Hegelian philosophy of science? This question will accompany our investigation. For now, we can be reminded that Hegel does speak of “science of philosophy”. He begins to make intensive use of this term in the “Introduction” to the first volume of his and Schelling’s *Critical Journal of Philosophy* (1802), where he describes the proper “science of philosophy” as acknowledging that “the absolute” is the “highest idea” and that such “infinity” exists in thought, while

transcending the dualism between the finite being and infiniteness.[10] In his essay on skepticism in the second volume of this journal, Hegel argues that the "science of philosophy", as the science of "the infinite" that contains truth, would be the reasonable answer to dogmatic skepticism à la Kant.[11] Such science should be the departure point for all other sciences.[12] Hegel mentions in his curriculum vita that he dedicates his life to the "science of philosophy"[13] and describes the *Phenomenology of Spirit* as the "new, interesting and first science of philosophy",[14] lamenting the "contempt" for any "science of philosophy" in his time.[15] Concerning the history of philosophy, a central Hegelian thought is that the "science of philosophy" as a whole is a "circle" in which each part has its "predecessors and successors".[16] Therefore, the very existence of "science of philosophy" is historically conditioned by the "manifoldness of the many philosophies".[17] The uniqueness of such science is that it seeks to reach an "understanding" (*Verstehen*) of previous philosophical works. Nonetheless, Hegel emphasizes that such science should not presuppose the concept of philosophy at the beginning of the investigation, because it only reaches it fully at the end.[18] All this shows that the plan of developing a kind of scientific philosophy was in his mind all along.

Hegel uses the term "philosophical science" to refer to non-formalistic, self-conscious science which is divided into three encyclopedic domains: the science of logic as "pure science", including metamathematics, and the

[10] Cf. 2/181.
[11] Cf. 2/252.
[12] Cf. 2/435.
[13] 2/583 (from 1804).
[14] 3/593 (in the *Anzeige*).
[15] 8/12 (In "Preface to the first Edition" of the *Encyclopaedia* from 1817).
[16] 9/10.
[17] 18/37.
[18] Cf. 18/16ff.

two “sciences of the real” (*Realwissenschaften*), namely the science of nature, including the theories of mechanics, physics, biology, meteorology, and geology and the science of spirit, including anthropology, phenomenology, psychology and other subdisciplines, like the non-positivistic science of natural law, along with the sciences of state, art and religion. In the same semantic field, Hegel uses interchangeably, but more rarely, the term “philosophical knowledge”.[19]

Science as theoretically organized knowledge is thus not just one theme among others for Hegel, but rather a *quality* that he thinks philosophy, at the time of the *Phenomenology of Spirit*, does not, but should have. Evidently, a Hegelian philosophy of science would not separate the region of science as a specific field of inquiry within philosophy, for in this manner the term ‘philosophy of science’ would suggest that philosophy itself is definitively not a science, a thought with which Hegel would not reconcile.

With this in mind, philosophy of science can attain the meaning it deserves: its task is to take the methodological transformative step from ‘philosophy is not science’ to ‘philosophy is science’. Although sometimes it can seem as if Hegel tries to do the other way around, namely to turn science into philosophy, he is actually occupied with turning philosophy into science with the help of the “science of the *experience of consciousness*” that shows the way to the “science of spirit”. Consequently, a Hegelian philosophy of science would fall under the metacategory of ‘science’ and mean both philosophical science and scientific philosophy. The Hegelian self-reflection of science can be designated as the speculative phenomenological ‘science of science’ (*Wissenschaftswissenschaft*).

[19] 2/54; 2/238; 8/13; 8/92; 8/190.

Obviously, the word ‘science’ has changed its meaning over time, and we shall come back to this point later.

What is not so clear, however, is whether the contemporary discipline called ‘philosophy of science’ falls under the Hegelian category of ‘science’. Philosophers who treat epistemology as natural-empirical science do not treat it as phenomenological science. Hegel’s epistemology does not conceive of itself as a specific isolated region of knowledge claims, but rather as a “philosophical science” insofar as it refers, within a given language, to concepts which *are*, and are as expressible real beings. As a constituent of the “system of science”, epistemo-logy is a special mode of the “pure” *logos* that produces the *logos of logos,* the self-reflecting thought.

Nonetheless, there is a skeptical view that denies both meanings in Hegel. It claims that the historical project of philosophy of science is essentially post-Hegelian, for it supposedly emerged only after Hegel, and even anti-Hegelian, as Russell and his followers were. Therefore, this view believes that the very search for philosophy of science in Hegel is merely anachronistic. We will deal with this view in the next section.

1.2 The conceptual-historical problem

1.2.1 The pseudoproblem of anachronism

Without being called ‘philosophy of science’, systematic reflections on the nature of science are continually evident in the history of theoretical philosophy and can be traced back to the treatment of ἐπιστήμη in Plato’s *Theaetetus* and Aristotle’s *Posterior Analytics*. In early modern times, the anti-Aristotelian empiricist philosophy of science can be said to begin with Francis Bacon’s *Novum Organum Scientiarum* (1620). Nevertheless, a skeptical historicist view would hold that, since the explicit idea of

‘philosophy of science’ chronologically appears after Hegel’s lifetime and only gains popularity in the middle of the twentieth century with Popper, it means something essentially different from anything Hegel or his precedents thought of science. Searching for Hegel’s philosophy of science is then regarded as anachronism, i.e. an inconsistent juxtaposition of views and times. This is exactly the case with the positivistic historiography of philosophy of science.

Traditionally, positivistic historians of philosophy of science take Comte to be the father of modern philosophy of science.[20] Comte’s classification of natural sciences in *The Course in Positivist Philosophy* (1830), which is more or less successful until today, has contributed to the development of the various philosophies of the particular sciences. This work, which is the execution of Comte’s *Plan of Scientific Studies Necessary for the Reorganization of Society* (1822), celebrates the success of natural science by deifying its abilities. It aspires to resolve the post-revolutionary social crisis with the help of what is believed to be society’s new redemptive spirit: empirical sociology. Comtean sociology aims at analyzing social and political phenomena, mainly with quantitative methods of natural science like analysis and evaluation of observable facts and empirical data. Later, in the spirit of Comte, Ampère used the term “philosophy of the sciences” in his essay *Essai sur la philosophie des sciences, ou Exposition analytique d'une classification naturelle de toutes les connaissances humaines* (1834). In this essay, he presents a “natural classification” of the “cosmological sciences”, i.e. natural sciences, and the

[20] Cf. Bourdeau, M., “Auguste Comte”, in *The Stanford Encyclopedia of Philosophy*, ed. E.N. Zalta (www. plato.stanford.edu/archives/win2014/entries/comte, 2014).

"noological sciences", focusing, like Comte, mainly on the natural sciences.[21]

Sociological positivism à la Comte, however, is not so much a general philosophy of science as it is a naturalistic approach to the study of modern society. Therefore, the next typical candidate for the founding father of modern philosophy of science is commonly considered to be William Whewell, with his seminal work, *The Philosophy of the Inductive Sciences* (1840). The approach of this metascientific theory mostly emphasizes the natural sciences, and is thus highly significant for the future development of the predominant conception of philosophy of science. The explicit term *Wissenschaftstheorie*, along with Carnap's *Wissenschaftslogik*, was indeed only used later by the Vienna Circle and the analytic school to designate a logical-linguistic analysis of scientific sentences. Apparently, the term 'philosophy of science' was first used by Popper in *Philosophy of Science: A Personal Report* (1957)[22] and became popular in his time. In *The Logic of Scientific Discovery* (1959) in the preface to the English version, Popper expressly warns that "philosophy of science" is "threatening to become a fashion, a specialism, yet philosophers should not be specialists".[23]

Only from a non-systematic point of view can the search for Hegel's philosophy of science count as mere anachronism. Since this philosophical subdiscipline does not seem to have existed in Hegel's time, and hence to be able to assign to Hegel the same conceptual independent field of inquiry it came to be, the purely historicist view immediately negates the question of the existence of Hegel's philosophy of science. In what follows, I attempt to show why the whole idea of philosophy of science, as the primal

[21] Cf. *Historisches Wörterbuch der Philosophie*, vol. 12, p. 979.
[22] Ibid., p. 980.
[23] Popper, 2002, p. xxvi.

project of ‘analytic philosophy’, may appear to some to be, from its start, essentially ‘anti-Hegelian’.

1.2.2 The anti-Hegelian philosophy of science

This inquiry is not concerned with a comprehensive description of the history of modern philosophy of science; instead, it is concerned with reading it in terms of its relation to Hegel’s philosophy, that is, as the history of the negative reaction to Hegel’s system. Over time, this reaction has become more and more aware of itself as an attack on Hegel that was unjustly too sharp. It therefore decreased at a certain point, and since then it has lessened more and more, although it has not subsided completely. The attack was against what was taken to be, each time in a different form, Hegel’s ‘idealistic-holistic’ conception of the absolute as an infinite spirit moving forward in time by some necessary contradictions in knowledge. Hegel seemed to lack a proper philosophy of science and even to serve as a good example of an antipode of an acknowledged philosopher of science. Despite this, at some point, there is evidence of a slow approximation to Hegel. The following is an outline of the main points in this course of events.

The roots of the anti-Hegelian stream in philosophy of science lie in the efforts towards a positivistic *wissenschaftliche Philosophie* in the aftermath of Hegel.[24] Comte can be considered as the opposite pole to Hegel since they disagreed philosophically and did not think highly of each other. For Comte, Hegel was “too metaphysical”; his conception of spirit played a too

[24] Michael Friedman claims that the modern “scientific philosophy” was developed “as a reaction against what was viewed as the excessively speculative and metaphysical character of post-Kantian German idealism” (2012, p. 1).

"singular role"[25] and his belief in the supremacy of the absolute was "dogmatic".[26] As we are informed by Gustave d'Eichtal's letter to Comte of January 12, 1825, Hegel had severely attacked the general conception of Comte's *Plan of Scientific Studies Necessary for the Reorganization of Society*, in particular the method of "observation", as being inappropriate in political science.[27] After receiving a copy of Comte's work from d'Eichtal in 1824, Hegel met with d'Eichtal to discuss Comte's ideas. In this meeting, Hegel rejected the idea of an alliance with Comte's "positive philosophy", and he never mentioned Comte in his writings.

In the face of this relationship, it is striking that Comte's formulation of a dialectical law of three historical stages[28] was apparently influenced by Hegel's analysis of historical phenomena after reading several translated manuscripts. According to recent findings by Comte's Biographer, Mary Pickering, d'Eichtal translated several pieces of Hegel's *Lectures on the Philosophy of History* for Comte.[29] Despite Comte's criticism, he referred to Hegel as "without a doubt a man of merit" and found "a great number of points of contact"[30] between them as he shared with Hegel the positive relation to the dialectical method,[31] the unity of synthesis,[32] and other issues.[33]

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[25] Cf. Pickering, 1993, p. 299. Comte writes this to Gustave d'Eichtal, December 10, 1824.
[26] Cf. Pickering, 1993, p. 299. In *The Course of Positive Philosophy* Comte claims the same in respect of other Kant successors.
[27] Cf. Pickering, 1993, pp. 297f.
[28] Cf. Comte, 1975, p. 71. In the first chapter of *The Course of Positive Philosophy*, Comte describes three incompatible stages of men's history: the theological-fictitious, the metaphysical-abstract and the scientific-positive.
[29] Cf. Pickering, 1993, p. 298.
[30] Pickering, 1993, p. 299.
[31] ibid., p. 211.
[32] Ibid., p. 224.
[33] Ibid., pp. 300f.

Unlike Comte, who has never published any criticism of Hegel, and in this sense does not fully represent an intended anti-Hegelianism, Whewell openly condemned Hegel's philosophy at a meeting of the Cambridge Philosophical Society in 1848 as "premature" and "precarious".[34] Whewell believed that Hegel's project was "to construct physical science *a priori*",[35] and hence it was only "rash and blind attempts" resulting from Hegel's incorrect assumption of an object-subject identity. Instead of this identity, Whewell speaks of "antithesis of knowledge", the persistent bipolarism of "ideas" and "facts", "theories" and "things".[36] At another meeting in Cambridge the next year, Whewell presented a total refutation of Hegel's criticism of Newton.[37] In this way, Whewell became one of the main impulses for the new analytic philosophy of science.

On the German side, it was Hermann von Helmholtz who promoted a new concept of scientific philosophy. In 1855, at the dedication of a monument to Kant in Königsberg, Helmholtz lamented Hegel's speculative system of *Naturphilosophie* as creating an unbridgeable gap between natural science and philosophy, causing mutual distrust.[38] Helmholtz recommended the same natural-scientific fundamental principles for all fields of science and, parallel to this, the replacement of all metaphysics with *Erkenntnistheorie*. This was the beginning of the 'back to Kant' movement,[39] which has not yet completely subsided today. In spite of the blossoming Hegel research, the *Stanford Encyclopedia of Science* refers

[34] Whewell, 1860, p. 314.
[35] Ibid., p. 311.
[36] Ibid., p. 312.
[37] Ibid., pp. 504–512: "On Hegel's Criticism of Newton's Principia".
[38] Cf. Friedman, 2012, pp. 1f. Helmholtz mentioned Schelling as well.
[39] The neo-Kantianism of the Marburg School emphasizes epistemology and logic at the expense of ontology and metaphysics. It begins with Hermann Cohen's *Kant's Theory of Experience* (1871) and continues with Paul Natorp's *The Logical Foundations of the Exact Sciences* (1910) and Ernst Cassirer's *Substance and Function* (1910).

only to "Kant's philosophy of science", not to Hegel's, and he does not appear on the *Wikipedia* list of the 120 leading philosophers of science.

The next distinct phase of anti-Hegelianism was already conscious of itself as such, as it went against British Idealism which was a form of neo-Hegelianism, albeit not a unified doctrine. This also took place in Cambridge: in a patricidal act, in his dissertation (1898), the young George Edward Moore attacked the prevailing neo-Hegelian monist-holist view according to which the experience is a homogenous whole. This view was held by Francis Herbert Bradely in Cambridge and John McTaggart in Oxford, the main proponents of the movement of British Idealism, which began roughly in 1865 with James Hutchinson Stirling and continued with Thomas Hill Green and Edward Caird. As Bertrand Russell would later state, this momentous event belongs to the foundation mythos of the "new philosophy" of the analytic movement.[40] In *The Refutation of Idealism* (1903), Moore argued that Hegel's influential dialectic elevated "the practice of holding *both* of two contradictory propositions" to a philosophical principle, and that therefore it is no wonder "he has followers and admirers".[41] In the same year, Moore gave his final verdict on Hegel's contextualism in *Principia Ethica*: Hegel's "organic" way of thinking "that a part can have no meaning or significance apart from its whole must be utterly rejected".[42]

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[40] Moore's dissertation appeared in 1899 under the name *The Nature of Judgement* in *Mind*. Russell wrote: "I think that the first published account of the new philosophy was Moore's article in Mind on 'The Nature of Judgement'" (Russell, 1993, p. 42).

[41] Moore, 1993, p. 34: "The principle of organic unities, like that of combined analysis and synthesis, is mainly used to defend the practice of holding *both* of two contradictory propositions, wherever this may seem convenient. In this, as in other matters, Hegel's main service to philosophy has consisted in giving a name to and erecting into a principle, a type of fallacy to which experience had shown philosophers along with the rest of mankind to be addicted. No wonder that he has followers and admirers".

[42] Moore, 1993, p. 85.

Armed with his analytic program, later to be specified as "logical atomism", Russell immediately joined the battle against "the notion of an organic whole" which "must be attributed to defective analysis and cannot be used to explain things".[43] Based on Frege's formal logic of analyzability, Russell went explicitly against Hegel's position regarding the internal character of the predicates, which is responsible to the logical interdependence of all particular finite things, their "ideality", in Hegelian terms.[44] Russell argued that "the existence of the complex depends on the existence of the simple" and that "the self-identical particular things do not depend on the relations between them, which are external to them, not internal, as for Hegel".[45] Russell's naively realistic arguments were an attempt to refute the dialectic method by claiming that the phenomena of reality can be directly grasped through sense data. This view led Russell to believe that knowledge is not gained by mediation of concepts, but by acquaintance. This idea of immediate knowledge had long since been the focus of Hegel's critique. In fact, Russell returns to pre-Kantian and pre-Hegelian positions. By intentionally defining their own philosophical territory as having its end at the border with what they regarded as Hegel's, Moore and Russell actually declared themselves to be the 'other' of Hegel.

Still, we ought not to forget that both Moore and Russell began as enthusiastic Hegelians. While visiting Berlin as a young man in 1895, Russell planned to write a book series containing a dialectical "Hegelian synthesis" of various natural and social sciences.[46] Furthermore, later in his career, in "Hegel and the Common Sense" (1912), Russell considered Hegel's philosophy to be at least worthy of study, and he suggested that it

[43] Russell, 1903, p. 466.
[44] Cf. Welsch, 2003, pp. 13, 29.
[45] Russel, 1992, p. 133.
[46] Russell reports about it in "My Mental Development" from 1943 (2009, p. 15).

was a "disgrace to English philosophy that the task of translating the Greater Logic should still remain to be done".[47] In *My Philosophical Development* from 1959, he recalls that, in his earlier thought, he was definitely on the side of Hegel, and not Kant.[48] Likewise, in his autobiography, Moore praised "the constant insistence on clearness"[49] of his Hegelian teacher, John McTaggart, as well as his "eminently clear" lectures. Thus, one can even say, as Peter Hylton writes, that: "Under the influence of McTaggart and others at Cambridge, Russell and Moore became idealists in their student days, more indebted to Hegel, as they interpreted him, than to any other dominant figure".[50]

At the same time that Moore's and Russell's atomistic-analytic school of thought was spreading, another front of anti-Hegelian philosophy of science was emerging: the Vienna Circle.

Moritz Schlick, the father of the Vienna Circle, is said to have become "the very first professional scientific philosopher"[51] in 1922 on assuming the chair in *Naturphilosophie* that was created for Ernst Mach in 1895 and called "Philosophy, especially the history of the inductive sciences" (*Philosophie, insbesondere Geschichte der induktiven Wissenschaften*). Schlick, who proclaimed the end of what he considered the idealistic "hostile opposition" between philosophy and science "fomented by Schelling and Hegel",[52] states in his magnum opus *Allgemeine*

[47] Russell, 1999, p. 365.
[48] Russell, 1993, p. 32.
[49] Moore, 1942, pp. 18f.
[50] Hylton, 1993, p. 448.
[51] Cf. Friedman, 2012, p. 2.
[52] In "Is there intuitive knowledge?" from 1913 (Schlick, 1979, p. 141).

Erkenntnislehre (1918), translated as *General Theory of Knowledge*,[53] that scientific philosophy consists only in meaning analysis.[54] By this he also made way for a radicalized new form of declared anti-Hegelianism: Rudolf Carnap's logical positivism. Yet, in contrast to the common point of view, Schlick's insight into the rigorously conceptual character of knowledge bears a resemblance to Hegel's critique of non-conceptual knowledge-claims. We will come back to Carnap, but we will first show that Schlick shares a basic thought with Hegel.

Like Hegel in "Sensual Certainty", Schlick differentiates between intuitive acquaintance and conceptual knowledge, claiming that mere acquaintance with intuitive images or contents, if lacking any symbolism, mathematics, inference or proof, does not constitute knowledge. Like Hegel, he argues that the attempt to identify intuition as a form of knowledge is, at most, a conflation of conceptual knowledge in the form of cognition (*Erkenntnis*) with unelaborated, directly perceived sensation in the form of acquaintance (*Kenntnis*).[55] Schlick's point of departure, a rather Hegelian critique of the Kantian doubt about the knowability of the 'thing in itself', led him – again like Hegel – to reject the rather Schellingian idea of *Erkenntnis* through *intellektuelle Anschauung*. Schlick's position diverges thus from stereotypical positivism or empiricism.[56]

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[53] Previous seminal works in this area in Germany that could influence Schlick were: Eisler, R., *Einführung in die Erkenntnistheorie. Darstellung und Kritik der erkenntnistheoretischen Richtungen* (Leipzig: Verlag von Johann Ambrosius Barth, 1907); Messer, A., *Einführung in die Erkenntnistheorie* (Leipzig: Verlag von Felix Meiner, 1909); Störring, G., *Einführung in die Erkenntnistheorie: Eine Auseinandersetzung mit dem Positivismus und dem erkenntnistheoretischen Idealismus* (Leipzig: Verlag von Wilhelm Engelmann, 1909); Dürr, G. E., *Erkenntnislehre* (Leipzig: Verlag von Quell and Meyer, 1910).

[54] Schlick claims this also in "The Turning Point in Philosophy" (1930).

[55] Cf. Schlick, 1974, p. 83.

[56] Cf. Friedmann, 2012, pp. 2ff.

Partially following Schlick, Carnap explicitly attacks Hegel's philosophy in his programmatic essay *The Old and the New Logic* (1930), not only as being false in terms of content, but also as "logically untenable and therefore meaningless"[57] due to it being an "attempt to base metaphysics on pure logic".[58] Carnap instead presents his own post-Fregean *Wissenschaftslogik*, a view of philosophy as a logical analysis of the language of science, more precisely: as a branch of applied mathematical logic.[59] The idea of Carnap's "protocol sentences", i.e. the examinable elementary sentences that describe observations in physical-objective language, correlates to Russell's sensualist account of knowledge. In the "protocol sentences" there are atomistic unanalyzable unities, which are now called "elemantry experiences" (*Elementarerlebnisse*) and are totally reducible to the immediately given.[60] In the German preface to the second edition of *Der logische Aufbau der Welt* (1961) Carnap affirmed

[57] Carnap, 1959, p. 134: "Before the inexorable judgment of the new logic, all philosophy in the old sense, whether it is connected with Plato, Thomas Aquinas, Kant, Schelling or Hegel, or whether it constructs a new 'metaphysic of Being' or a 'philosophy of spirit', proves itself to be not merely materially false, as earlier critics maintained, but logically untenable and therefore meaningless". "Materially false" is here the translation for *inhaltlich falsch*, meaning that the content of such philosophy was false. *Sinnlos* is translated here as "meaningless", not in the sense of not being important, but because such philosophy would not make any sense.

[58] Ibid., p. 143: "Since the sentences of logic are tautological and devoid of content, we cannot draw inferences from them about what was necessary or impossible in reality. Thus the attempt to base metaphysics on pure logic which is chiefly characteristic of such a system as Hegel's, is shown to be unwarranted".

[59] In *Logical Syntax of Language* (1934); cf. Friedmann, 2012, p. 3.

[60] In *The Old and the New Logic* Carnap argues: "Every sentence of science must be proved to be meaningful by logical analysis. If it is discovered that this sentence in question is either a tautology or a contradiction (negation of a tautology), the statement belongs to the domain of logic including mathematics. Alternatively, the sentence has factual content, i.e., it is neither tautological nor contradictory; it is then an empirical sentence. It is reducible to the given and can, therefore, be discovered, in principle, to be either true or false" (1959, p. 145).

retrospectively: "My book is about the [...] thesis that is it principally possible to reduce all concepts to the immediately given".[61]

In an even more condemning tone, Hans Reichenbach, the leader of logical empiricism in Berlin, dedicates his work *The Rise of Scientific Philosophy* (1951) to a final battle with Hegel's conception of knowledge, declaring that "more than any other philosophy, Hegel's system has contributed to the division between scientists and philosophers. It has made philosophy an object of derision [*Verachtung*] from which the scientist wishes to keep his course clear".[62] Popper, who formulated the criterion of fallibility by experience, was also very hostile to Hegel's philosophy, which he considered in 1945 as nothing less than "totalitarianism" and the obstacle to the "open society". He described Hegel's philosophy in general as "devious" (*abwegig*).[63] However, Popper has articulated criticism of naturalistic theory of science,[64] which echoes Hegel's criticisms in some points, and which we will discuss later.[65]

At this stage in the development of philosophy of science, it seems that, on the one hand, the major heads of modern philosophy of science have bitterly rejected Hegel without having really read Hegel, while creating an anti-Hegelian sky over this field in which no horizon existed from which it made sense to consider Hegel as a proper philosopher of science. Hegel's concept of science seems to vanish into oblivion, and its investigation threatens to become stuck. On the other hand, the situation that makes the

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[61] Carnap, 1961, p. XVIII. The Original text: "*In meinem Buch handelte es sich um die [...] These, daß es grundsätzlich möglich sei, alle Begriffe auf das unmittelbar Gegebene zurückzuführen*".

[62] Reichenbach, 1951, pp. 72f.

[63] In the second preface for the German second edition of *Die Logik der Forschung* from 1963.

[64] Cf. Popper, 2002, pp. 29ff.

[65] In "2.3.2 Methodological naturalism".

question on Hegel's forgotten philosophy of science even more urgent is that most of the philosophers mentioned above have expressed some interest in Hegel's ideas and have held some positive picture of him. It is not just by chance that counter-Hegelian philosophy of science was at the same time so inspired by Hegel himself. In light of the previous observations, although some post-Hegelian critics diametrically negated Hegel's conception of science and 'turned it on its head', it is possible to trace in their positions the voice of one thought criticizing itself.[66] The analytic stream has indeed reviewed its position towards Hegel through Willard Van Orman Quine's critique of Carnap's logical positivism, of Russell's atomism, as well as of Popper's falsificationism. In another act of patricide within the tragedy of analytic philosophy, Quine's critique of positivistic empiricism made it possible, despite all the significant differences to Hegel to be later discussed, to shed some light on the way back to Hegel. Thus, the course of modern philosophy of science can be conceived as the result of an intense dialogue with Hegel that promoted a gradual turning back to his ideas, or rather towards them. The Quinean view of science will be presented in Chapter 2.

In order to examine Hegel's philosophy of science more closely, it is appropriate to consider concrete objections to the claim that philosophy of science is indeed to be found in Hegel's works.

1.3 The concrete research problem

Given that Hegel's nonuse of the phrase 'philosophy of science' cannot be a proof of the lack of philosophy of science in Hegel's system, and that to

[66] Roughly, this is also what Wolfgang Welsch suggests in his inaugural lecture in Jena "*Hegel und die analytische Philosophie: Über einige Kongruenzen in Grundfragen der Philosophie*" (1999).

speak of Hegel's version of philosophy of science is not necessarily anachronistic, we face a more concrete objection to the existence of something like philosophy of science in Hegel: the claim that none of Hegel's works contain themes similar to those of philosophy of science. This problematic claim seems to attain confirmation in Hegel's early theological manuscripts. It seems that from the beginning of his career, Hegel does not just ignore 'normal' philosophy of science, but even argues against the very project of science. We will thus begin by examining the claims that the young Hegel was 'anti-scientific'. We will go on to deal with the claim that his later published works do not contain philosophy of science and show to which extent this is only *prima facie* the case.

1.3.1 The young 'anti-scientific' Hegel

Although in his first productive years until the *Phenomenology of Spirit* (1793-1807) Hegel does not explicitly deal with the question of science, he does refer to science more than once. On closer examination of Hegel's use of the term 'science', two distinct periods become evident: the young Hegel (1793-1801) and the Jena writings (1802-1807). In the latter, Hegel begins to discuss issues that will later be relevant for his philosophy of science. In "Faith and Knowledge" (1802), he deals with the question of knowledge in the light of the objectivity-subjectivity dualism problem. In a book review "Gerstäcker's Deduction of the Concept of Right" (1802), he makes a clear distinction between science and the empirical method. Furthermore, in the last publication before *Phenomenology of Spirit*, "The Scientific Ways of Treating Natural Law, Its Place in Moral Philosophy, and Its Relation to the Positive Sciences of Law" (1802–3), he criticizes both the empirical Humean approach as well as the purely formal-transcendental Kantian-Fichtean approach, claiming that they both miss the right definition of the

absolute point of view. Whereas in the second period, Hegel gradually begins to approach the issue of science in a rather affirming way, in the first period, he mostly deals with the topics of religion, morals, state and law; and in the rare occurrences of 'science', he seems to be very critical about it. In order to clarify what may seem to be Hegel's peculiar relation to science, we shall focus on the first period, which can shed light on the development of Hegel's conception of science.

The first significant reference to 'science' appears in Hegel's earliest essay known to us, "The Tübingen Essay" (1793),[67] which reflects on the value and necessity of religion to morality. Hegel argues that true religion is essentially not a "mere science of God" (*bloße Wissenschaft von Gott*), i.e. not a given set of theological dogmas, something he calls "objective religion". Whereas religion is treated charitably from the first sentence of the essay as "one of our greatest concerns in life", science is presented to us in the diminishing phrase: "a mere science". But in fact, Hegel is criticizing a certain conception of science. He argues that if science means to have an external object, then religion cannot be such a science since god cannot be investigated as such an external object. Still under the influence of leaving the Tübingen Seminary, Hegel suggests that theology, the "science of God", ought not to be treated as science *about* god like in the old metaphysics. Rather, he holds that, in contrast to such pseudo-scientific theology, only "subjective religion" really matters to the determination of the true essence of religion because it has an indispensable value to significant issues such as moral sense. True science of religion must be

[67] This unpublished, unfinished and untitled essay appears in the German edition under *Fragmente über Volksreligion und Christentum*, in English: *On the Prospects for a Folk Religion*, in: *Three Essays, 1793–1795. The Tübingen Essay, Berne Fragments, The Life of Jesus*, ed. and trans. with an Introduction and Notes by P. Fuss and J. Dobbins (Notre Dame, Indiana: University of Notre Dame Press, 1984), pp. 30–58.

science of the subject, and not of god as a sensual object. Only "subjective religion", which Hegel describes as that which successfully encourages the suppression of the sensual desires and so helps to obstruct mere sensuality, is capable of entering the "heart" of humans and affecting the morality of their actions. Later in his career, Hegel would draw back from this overvaluing of the subjective side of morality and criticize the idea of the "law of the heart" as clashing with the public dimension of *Wirklichkeit*. Hegel would then emphasize the institutional side of "objective spirit". Parallel to this, he would also withdraw from his undervaluing of science and suggest an alternative conception of science.

As far as we can extract from the rest of this manuscript, science is for the young Hegel that which we obtain by naked reason, by "mere reason" (*bloße Vernunft*), for it is nothing more than a "mere historical or deduced knowledge" (*eine bloße historische oder räsonierte Kenntnis*). The objectivist concept of science, 'science *about* an object', is in the realm of theology a derogatory example of secondary knowledge with lower value in comparison to the positive power of religion. In agreement with this, Hegel goes on to claim that true wisdom speaks from the "depths of its heart" and hence is not such a simple science about an external object. He also adds that wisdom is not exactly "enlightenment", hinting at his critique of the problematic interrelation between modern science and enlightenment.[68] At this point, Hegel grasps the work of such object-oriented "mere science" as being chiefly about rationalizing through proceeding with the mathematical method, which means, commencing with concepts, but then continuing only with formal-logical inferences. He mockingly mentions the famous scholastic modes of basic inferences

[68] This critique takes place in the part of this essay entitled "Enlightenment: the will to actualize by means of the understanding" *(Aufklärung – Wirkenwollen durch Verstand).*

"Barbara and Barocco" as that which one already learns at elementary school. Here it is obvious too that wisdom is of course on the good side, whereas the discussed kind of science is on the bad side. Hegel would soon develop the possibility to understand science and its purportedly rational construction in a completely different way, not based on the mathematical method or purely formal inferential schemes, as they both lack any substantial relation to the world.

One significant result of our analysis of Hegel's initial relation to science is the possibility of reading his later discussion on science as his critical response to the problematic *verständig* object-oriented concept of science that scholastic theology has promoted. Hegel's argument is that this kind of rationalist theology has blocked the true way towards a *vernünftig* subject-oriented science of god.

Beyond what seems to be the disparaging use of the term science in the early Hegel, there is a difficulty with the example of science he alleges in this period. In the essay "Germany's Constitution" (1799-1801), where Hegel refers to the logical-rational structure of science in a more positive voice, the science he means is not physics or mathematics, as might be expected, but rather *Staatsrechtslehre*, i.e. the juridical-political "doctrine of state law".[69] Since the idea of *Staatsrecht* ('state law'), the part of *Öffentliches Recht* ('public law') that settles issues between the individual and the state, is characteristic of continental law but not common law, it can lead to the misinterpretation of the origin of Hegel's concept of science. For Hegel, *Staatsrecht* embodies an excellent example for a rigorously scientific system because it is based on the precise *Begriffsjurisprudenz* and contains one reasonable idea, not just a mere

[69] Hegel uses the *Staatsrecht* as a scientific proof for the refutation of the official status of Germany as a state in the aftermath of Napoleon's victory over Prussia, thereby deriving conceptual conditions to be fulfilled in order to be designated as a state.

empirical description of so-called observational facts. However, with this, Hegel still grasps systematic science as syllogistically derived from principles, and not, as he would later claim, as categorical *Darstellung* of theoretical reflection on praxis forms.

It follows that the young Hegel, who enthusiastically expresses 'pro-religious' opinions, is not simply 'anti-scientific'. Rather, he goes against one popular one-sided notion of 'objective' science that does not take into account the question of the subject of knowledge. In the next chapters we will discuss in detail how Hegel develops his concept of science. We turn now to the question whether Hegel's later works contain philosophy of science.

1.3.2 Phenomenology of Spirit does not seem to be philosophy of science

Considering the literary genre and general content of the *Phenomenology of Spirit*, it may appear to have little to do with proper philosophy of science. Firstly, although it does not exactly resemble any known kind of fiction, poetry or drama, it brings *belles-lettres* to mind to some: "a very peculiar kind of *Lesedrama*"[70], i.e. "closet drama", a "novel",[71] "a 'coming of age' novel, a *Bildungsroman*"[72] or "a new version of the divine comedy".[73] *Phenomenology of Spirit* is certainly not written in an easily digestible language and its literary form is highly original, if not a novelty. It is thus difficult to determine whether it fits to any received scientific theory or scientific work.

[70] Dove, 1998, p. 60.
[71] Cf. Pippin, 1991, p. 72.
[72] As Pinkard reports (2002, p. 222).
[73] Ibid.

Jean Hyppolite anticipated this problem and contested the *belle-lettres* status of *Phenomenology of Spirit*, arguing that Hegel does not consider his own representation of the development of consciousness as a novel, but rather as a scientific work.[74] In spite of this very good point, which I would like to take up here, Hyppolite does not himself hesitate to mention at least two novels as a prototype of Hegel's text: Jean-Jacques Rousseau's *Emile* and Novalis' *Heinrich von Ofterdingen*. His reception has thus continued to contribute to the interpretation of *Phenomenology of Spirit* as some kind of prose. In this, he follows the tradition of Georg Lukács who began with comparing *Phenomenology of Spirit* with *Heinrich von Ofterdingen* and Goethe's *Wilhelm Meister* and is responsible for the reading of the *Phenomenology of Spirit* as a novel whose main figure is allegedly a "supernatural person, the world-spirit".[75]

The demand for any particular literary genre, however, cannot serve as an a priori absolute condition for the proper presentation of theoretical thought on a certain subject matter. Such thought can be realized in the dramatic form of dialogue, as in Plato's *Theaetetus*. Like the figure of Socrates in the Platonic dialogues, "consciousness", the main character in *Phenomenology of Spirit*, can be read as confronting others who happen to be other forms of itself, i.e. other forms of consciousness.[76] Since the literary form of a text, in the case where it is indeed a meaningful text and not idle talk, cannot alone sufficiently and exclusively determine its philosophical topic, the problem of speaking about Hegel's theory of

[74] Cf. Hyppolite, 1946, p. 15.
[75] Stekeler, 2014, p. 26.
[76] Stekeler's dialogical interpretation of the *Phenomenology of Spirit* takes Hegel's logic of speech acts to be a dialogue between "individual judgment and collective knowledge" (2014, p. 17).

science in the *Phenomenology of Spirit* cannot stem mainly from the literary aspect.

Therefore, the second and greater difficulty is that, considering the long list of various issues Hegel addresses such as perception, pleasure, freedom, morals, religion and art, the project of *Phenomenology of Spirit* does not seem to be "merely epistemological".[77] The *Phenomenology of Spirit* does not seem to contain a "theory of epistemic justification".[78] It was argued that the *Phenomenology of Spirit* is not about epistemology, and that this work even goes directly against any epistemology. It attacks the very idea of "theory of knowledge" or "epistemology" as absurd, because this would be a theory about knowledge that precedes the knowledge itself.[79] The "Introduction" to *Phenomenology of Spirit* was already read as Hegel's revolutionary answer to the modern "dilemma of epistemology" because "Hegel's argument strikes at the heart, not just of Kantian epistemology, but of the whole traditional conception of epistemology referred to at the beginning of the introduction".[80] Terry Pinkard took this approach a step further and stated that, although the "Introduction" may look to the modern reader like some "kind" of epistemology, Hegel does not elaborate on the common themes of philosophy of science and does not deal with any of the usual "problems of the evidence of the sense or induction, whether the justifying evidence for epistemic claims is 'internal' or 'external' to consciousness, and similar issues".[81] Pinkard stresses that, even in the chapter "Observing Reason",

[77] Pippin, 1993, p. 60.
[78] Heidemann, 2008, p. 19.
[79] Solomon, 1983, p. 294.
[80] Norman, 1976, p. 11.
[81] Pinkard, 1994, p. 4.

which Pinkard holds to be the main chapter on science, Hegel does not dwell on any of the typical themes of philosophy of science:

> "He does not discuss scientific method in any real detail, and he does not offer any extended philosophical treatment of the problems of induction, on questions of theory construction, on the role of theoretical terms versus observational terms in scientific theory, on the logic of discovery versus the logic of justification".[82]

Yet, Hegel does refer to these issues in his own way in the chapters "Sense Certainty", "Observing Reason" and the "Introduction" respectively, to which we will turn later. The discussion of the "more contemporary" topics of logic of discovery and logic of justification is performed by Hegel with the terms "immediacy" and "mediation"; and generally, if logic is part of philosophy of science, as Pinkard suggests, then we can expect Hegel to deal with it at least in *Science of Logic*. Pinkard's arguments raise the question of whether Hegel really did not address these topics or whether he did so using other possible terminology. In *Phenomenology of Spirit*, Hegel obviously does not speak only about the concepts of science and knowledge, and so the *Phenomenology of Spirit* does not explicitly set only the question of the demarcation of science or the problem of induction. But if we wish to offer a more metascientific reading of Hegel, it would be more intelligible to claim that Hegel's project is at least not concerned with the usual features of what is considered "contemporary" philosophy of science.

According to Pinkard, Hegel does not deal with the scientific method because he does not want to "dictate" or "prescribe" any method. This is

[82] Ibid., p. 82.

perhaps true with regard to the empirical method of natural science, but Pinkard adds that Hegel does not even consider the problem of method as a philosophical question, because it is something Hegel "leaves" to scientists: "the nature of scientific method is best left to the working scientists to determine for themselves".[83] This Feyerabendian thesis may sound convincing, but it is not clear if it is to be found in this form in Hegel. One can rather say that Hegel does not speak about scientific method in any conventional way, or as Pinkard says, in the "contemporary" way. In order to reinforce his argument, Pinkard argues that Hegel does not "dictate" the method or rules for painters in his philosophy of art either. However, one should note that Hegel never declared that his own project was to do art or to paint, but he did declare it to be scientific. Thus, if we find a claim about the scientific method in Hegel, we can say that he thought it as a 'scientist'; and if not as dictation, for it is surely not, then at least in the form of self-account or self-interpretation, and as such, perhaps as a recommendation. Even if one thinks that Hegel did not recommend any scientific method, it is not clear why to assert that the issue of scientific method was never an object of Hegel's philosophical investigations.

Finally, Pinkard claims that Hegel's philosophy of nature, which explores the basic conception of nature "that underlies all scientific investigation in the first place", has nothing to do with philosophy of science because it does not "explore the methods and rationality of natural science".[84] This is perhaps true in general, but it is very evident that Pinkard presupposes here a certain concept of philosophy of science as philosophy of empirical natural science which mainly questions the issue of "empirical methods". Indeed, as Hans-Friedrich Fulda already noted, the

[83] Ibid., p. 83.
[84] Pinkard, 2000, p. 566.

legitimate question about Hegel's epistemology remains confusing and unanswered: "To what kind of epistemological question did Hegel dedicate his introductory Phenomenology? It seems to me that a good answer to this question, one that clarifies the program of the work, requires a more complex approach than those that have been pursued so far."[85]

1.3.3 The Logic does not seem to be philosophy of science

Commonly, logic is taken to be the science that questions categories of thinking, the essence of language, and the question of truth. It is not taken to be the same activity as theorizing science. Therefore, Hegel's *Logic*, both the great one, *Science of Logic*, and the small one in the *Encyclopaedia*, does not seem to be sufficient for proper philosophy of science. This claim can be reinforced by the very term epistemology, which is, as the logic of the episteme, a more specific determination of logic and thereby formally counts only as one realm of logic. This is Popper's basic perspective. According to it, any inquiry into the essence of science – be it methodological or epistemological – vastly differs from any pure logic such that "it would be hardly suitable to place an inquiry into method on the same level as a purely logical inquiry".[86] Popper regards the inquiry into science as altering and "without end", unlike the logic which is "finally verified", i.e. axiomatic. Also for Hegel logic is some kind of "ground" for the "real" sciences in his system in the *Encylopaedia*, but the logic is essentially an altering science, not simply axiomatic. Popper argues so because, unlike Hegel, he compares the idea of "inquiry" with that of "game" and so conceives of "method" as "rules of the game", while

[85] Fulda, 2008, p. 23.
[86] Popper, 2002, p. 32.

speaking of the "rules of the game of science".[87] For Popper, hypotheses within the inquiry into science, unlike those within pure logic, must be "testable" and "falsifiable". For our question, we can draw on the way he summarizes the difference between logic and philosophy of science – or in our context, between logic and Hegel's *Phenomenology of Spirit* – as follows: "Although logic may perhaps set up criteria for deciding whether a statement is testable, it certainly is not concerned with the question whether anyone exerts himself to test it".[88] For Hegel, on the contrary, logic *is* the scientific method per se.

In this vein, against the claim that Hegel's *Logic* contains a general philosophy of science, one can argue that it only presents one science among others within Hegel's greater system, next to the "sciences of the real" (*Realwissenschaften*): "science of nature" and "science of spirit". In this way, the *Logic* seems to present only the "pure science" of *Denkbestimmungen*, based on the "pure knowledge" or "absolute knowledge", which is the product of the *Phenomenology of Spirit* and is free of the subject-object dualism of consciousness. Leaving out the role of consciousness for science construction, Hegel's *Logic* does not seem to be able to replace philosophy of science.

1.4. Transition: Hegel's "theory of knowledge" and "theory of science"

In spite of the circumstances described in the last section that seem to impede the affirmation of philosophy of science in Hegel's works, it is attestable that Hegel does not neglect the treatment of the notion of science. He does not see it as superfluous or preposterous. The *Phenomenology of Spirit* was envisioned by Hegel as the first part in the "System of Science",

[87] Ibid.
[88] Ibid.

containing the outlines of his conception of science, mainly in its "Preface" and "Introduction". As a result, there are several Hegel scholars who assert that he clearly develops a version of philosophy of science, including theory of knowledge, i.e. epistemology. We turn now our attention to them.

To begin with, Pinkard, who generally negates that Hegel deals with the contemporary themes of philosophy of science, rightly holds that *Phenomenology of Spirit* is concerned with "theory of knowledge", or as he puts it, "with how the kinds of knowledge-claims that we make can be said to match up with the objects that they purport to be about".[89] The task of such a theory is to find a ground for all knowledge in the form of a self-certifying idea against skepticism. This task can be described as evaluating what "can count as *authoritative* reasons" and whether those reasons are truly authoritative.[90] Some characterize Hegel's epistemology as "non-Cartesian", i.e. as non-dualist,[91] and as "circular", i.e. as object-thought-circular, or being-thought-circular.[92] Kenneth Westphal describes Hegel's forgotten and unrecognized theory of knowledge in the *Phenomenology of Spirit* as "socio-historically based epistemological realism".[93] He explains the reason for the doubt about the existence of such a thing as Hegel's epistemology in the following way: "one reason Hegel's epistemology has gone unrecognized is that philosophers have too often supposed that combining realism with a social and historical epistemology is impossible".[94] Westphal's useful insight is as follows:

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[89] Pinkard, 1994, p. 3.
[90] Ibid., p. 5.
[91] Cf. Rockmore, 1986, vii; Westphal, 2003, pp. 4, 38: Limnatis, 2008, p. 1.
[92] Cf. Rockmore, 1986, vii: Limnatis, 2008, p. 1.
[93] Westphal, 2003, p. 64. Kenneth Westphal has already formulated this view in "Hegel's Epistemological Realism: A Study of the Aim and Method of Hegel's Phenomenology of Spirit" (1989).
[94] Westphal, 2003, p. 2; see also p. 51.

> "So long as philosophers remain convinced that their thinking is sui generis, and not indebted to their intellectual inheritance, they will resist at any cost acknowledging the social dimensions of human knowledge, and also the value of Hegel's epistemology".[95]

The belief in a stark dichotomy between reason and tradition as in the Enlightenment, so Westphal, prevents an understanding of Hegel's epistemology. At the same time, one has to be careful not to relapse, like Westphal almost does, into relativistic historicism, holding a mere identity between reason and tradition. As Westphal rightly argues, Hegel's epistemology goes against the Kantian conception of the absolute a-historicity of knowledge. The key thesis of Hegel's epistemology is his idea of justification through internal critique of the opposed views,[96] i.e. self-criticism of self-consciousness without escaping the conceptual scheme, which is corrigible.[97] This is his solution to the dilemma of the criterion of truth; that is, his response to ancient skepticism as well as to Kantian skepticism.[98]

In his latest *Dialogical Commentary* (2014), Pirmin Stekeler considers Hegel's *Phenomenology of Spirit* as philosophy of science, reminding us that the framework of the *Phenomenology of Spirit* is Hegel's preliminary work on his *Wissenschaftslehre*.[99] Stekeler reads the *Phenomenology of Spirit* as an "analysis of the real-forms (*Realformen*) of knowledge"[100]

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[95] Ibid., p. 90.
[96] Ibid., p. 91.
[97] Ibid., p. 75.
[98] Ibid., p. 38.
[99] Stekeler, 2014, p. 29: "*Die Phänomenologie des Geistes entstand bekanntlich im Rahmen von Hegels Vorarbeiten zu einer Logik oder Wissenschaftslehre*".
[100] Stekeler, 2014, p. 19.

which aims at "the knowledge of what knowledge is".[101] He formulates the interrelation between *Wissen* and *Wissenschaft* in Hegel as follows: "Hegel's analysis of consciousness leads thus to science through knowledge and aims at knowledge about knowledge. The guide question is how knowledge is differentiated from subjective certainty. The answer is: through the institution of scientific examination of the validity claims".[102] In order to know what knowledge and science are, one needs to perform a kind of Hegelian "logical-phenomenological analysis of categorical forms of expression".[103] On this view, it is possible to attest that Hegel's *Phenomenology of Spirit* is philosophy of science insofar as this work of dialectics aims at a progressive notion of science qua self-knowledge that refers to the subjecthood of the whole person as a possible object of knowledge.[104]

Stekeler's earlier interpretation of Hegel's *Logic* as general theory of science in *Hegel's analytische Philosophie* (1992) marks a turning point in the self-conscious reception of an explicit Hegelian philosophy of science, as he establishes:

> "Hegel's 'speculative' logic, in distinction from the rules of the classical logic of the Aristotelian tradition and in certain respect from the post-Fregean tradition, is essentially *metalogic*, a kind of general

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[101] Ibid., p. 31: "*das Wissen darüber, was Wissen ist*".

[102] Ibid., p. 51: "*Hegels Analyse des Bewusstseins führt also über das Wissen zur Wissenschaft und zielt auf ein Wissen über das Wissen. Leitfrage ist, wie sich Wissen von subjektiver Gewissheit unterscheidet. Antwort ist: durch die Institution wissenschaftlicher Prüfung der Geltungsansprüche*".

[103] Stekeler, 2014, p. 19: "*Wenn wir [...] wirklich wissen wollen, was Wissen, Wissenschaft und Selbstbestimmung ist, dann bedarf es einer logisch-phänomenologischen Analyse von kategorialen Ausdrucksformen*".

[104] Cf. ibid., p. 241: "*Die* Phänomenologie des Geistes *ist eben damit auch Wissenschaftsphilosophie*".

metascience. It does not differ in its *purpose* from a modern *general theory of science* and *critique of knowledge*".[105]

In addition, he argues that Hegel's "Philosophy of Nature" includes "science theory of natural science" (*Wissenschaftstheorie der Naturwissenschaften*) and that his "Philosophy of Spirit" includes "science doctrine of the humanities" (*Wissenschaftslehre der Humanwissenschaften*).[106] As Stekeler explains, the difficulty in understanding Hegel's speculative sentences is caused by the reifying subject-predicate structure of our sentences, which falsely tempts us to think that the categories are transcendental objects, whereas Hegel does not present us with laws of thought, but with analysis and critique of meaning, i.e. with *Sinnanalyze* and *Sinnkritik.* Hegel's categories are not limited *horoi*, but "titles-like syntactic-semantic forms" whose ways of use are open and can be further developed.[107]

In our investigation, we would like to take up the points that Stekeler, Westphal and Pinkard make about Hegel's notion of science, along with the relevant epistemological considerations, and look for the basic features of Hegel's general theory of science in its relation to contemporary thought. One of the most prevalent views in contemporary Hegelian research, and the main phenomenon in Hegel's contemporary reception, is ascribing naturalism to Hegel's philosophy of science. In the next chapter we will analyze this phenomenon, its roots, consequences and meaning.

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[105] Stekeler, 1992, 40: "*Hegel's 'spekulative' Logik ist im Unterschied zu den Regeln der klassischen Logik der aristotelischen und in gewisser Weise auch der nach-Fregeschen Tradition wesentlich* Metalogik, *ja allgemeine* Metawissenschaft. *Sie unterscheidet sich in ihrer* Zielsetzung *nicht von einer modernen* allgemeinen Wissenschaftstheorie *und* Wissenskritik".

[106] Ibid., p. 58.

[107] Ibid., pp. 40f.

2. The debate on Hegel's naturalism

After arriving at the conclusion that Hegel does indeed develop some kind of philosophy of science, we turn now to the question of whether his philosophy of science corresponds to naturalism. Given that naturalism is one of the most prevalent conceptions in philosophy of science, and even the official ideology of current Anglophone philosophy,[1] as "nearly everybody nowadays wants to be a 'naturalist'",[2] it is no wonder that there are already many Hegel scholars who ascribe naturalism to Hegel's philosophy of science and epistemology.[3] This chapter attempts to examine in what sense we can appropriately speak of Hegel's naturalism by presenting the ongoing dialogue between Hegelian thought and the naturalistic approach. It includes an investigation of Hegel's concept of nature that should shed some light on the question of Hegel's relation to naturalistic epistemology.

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[1] Cf. Kim, 2003, p. 84: "If current philosophy can be said to have a philosophical ideology, it is, unquestionably, naturalism. Philosophical naturalism has guided and constrained analytic philosophy as its reigning creed from much of the twentieth century". As Jaegwon Kim shows, the trend of naturalism can be traced back to the American philosophers John Dewey, Sidney Hook and Ernest Nagel, who, among others, published in 1944 the manifesto *Naturalism and the Human Spirit*.

[2] Papineau, 1993, p. 1.

[3] The main works involved in the naturalism debate in the last three decades to be mentioned in the following are: DeVries, *Hegel's Theory of Mental Activity*. *An Introduction to Theoretical Spirit* (1988); Beiser, "Introduction: Hegel and the Problem of Metaphysics" (1993), *German Idealism: The Struggle against Subjectivism, 1781–1801* (2002); Westphal, *Hegel's Epistemology*: *A Philosophical Introduction to the Phenomenology of Spirit* (2003); Redding, *Analytic Philosophy and the Return of the Hegelian Thought* (2007); Pippin, *Hegel's Practical Philosophy: Rational Agency as Ethical Life* (2008); Papazoglou, "Hegel and Naturalism" (2012); Pinkard, *Hegel's Naturalism: Mind, Nature and the Final Ends of Life* (2012); Tesla, "Hegel's Naturalism or Soul and Body in the *Encyclopaedia*" (2013).

2.1 Hegel's 'naturalistic turn'

There is an observable increasing tendency to read Hegel "as a great naturalist"[4] whose philosophy is generally consistent with certain kinds of naturalism. The naturalistic reading benevolently seeks to defend Hegel, notably his scientific soundness, from being diagnosed as metaphysical, religious or theistic, and hence from being seriously doubtable. It was thus argued that Hegel's "apparent indulgence in metaphysics" is actually "a form of scientific naturalism"[5] that involves "a much greater degree of naturalism" than, for example, Kant's idealism.[6] Hegel's philosophy of spirit, in particular his psychology, was presented as "deeply naturalist".[7] Even where "hard" or "bald" naturalism in Hegel was rejected, we still find assertions that his concept of nature "is that of disenchanted Aristotelian naturalism"[8] and that his epistemology contains "naturalist elements"[9] and a "naturalistic dimension".[10]

The preoccupation with Hegel's naturalism is continuous and in full swing. The naturalistic turn in Hegel's reception, which corresponds to the general intensification of naturalism, gives rise to the question of Hegel's position towards naturalism. In this debate, everything depends on what is meant by "naturalism". We will begin with a preliminary answer resulting from the wide semantic content of the term naturalist and then look more closely at other exemplary responses.

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[4] DeVries, 1988, p. xii.
[5] Beiser, 1993, p. 8.
[6] Beiser, 2002, p. 3, 355.
[7] Westphal, 2003, p. 55.
[8] Pinkard, 2012, p. 19.
[9] Westphal, 2003, p. 52.
[10] Redding, 2007, p. 234.

2.2 Hegel as a naturalist: nature lover and natural historian

If to be a naturalist means to be a scholar who is engaged in the study of nature, then, in some respects, Hegel can be considered a naturalist. Like most of the canonical modern philosophers, from Descartes to Spinoza, from Leibniz to Kant, Hegel extensively deals in his writings with the question of nature. Hegel's occupation with nature culminates in the dedication of no less than one-third of the *Encyclopaedia* (1817) to "Philosophy of Nature". His studies of nature are already presented in the early drafts in the *Jenaer Systementwürfe* (1803–6) as well as in the *Phenomenology of Spirit* (1807) where he develops conceptual issues regarding natural laws and natural powers.

In the traditional sense of the term naturalist, this term indeed refers to a natural historian, a person who studies *historia naturalis* (*Naturgeschichte*), i.e. the observational study of plants and animals, a branch of the general natural study (*Naturforschung*). In this sense, Hegel was a naturalist, because for a period of time, as his Biographer notes, Hegel conducted empirical researches on nature: "In 1802 and 1803, Hegel began to assemble clippings concerning natural science from various journals and newspapers, and he returned intensively to one of his earlier interests as a schoolboy in Stuttgart, the study of physics and mathematics".[11] This old love had borne fruit: in 1804, the same year Hegel was elected to the Westphalia Society for Natural Research, he had become an assessor of the Jena Mineralogical Society, and due to that appointment, he was issued a pass for a trip to Göttingen and the Harz mountains for geological study.[12] Apparently as a consequence of this, Hegel identified himself in the title page of the *Phenomenology of Spirit* as a practicing mineralogist, namely

[11] Pinkard, 2000, p. 186.
[12] Cf. Verene, 1998, p. 209.

"Dr. and Professor of Philosophy in Jena, Member of the Ducal Mineralogical Society, Assessor to the Society and Member of other learned societies". In this respect, Hegel was a dedicated lover of nature.

Yet, perhaps since Hegel performed natural studies for only a few years, the authors involved in the naturalism debate do not consider Hegel as a naturalist because of his love of nature or his inquiry into natural history, but because of having certain naturalist views in his philosophy of science.[13] Studying nature, irrespective of the method, is not a sufficient condition for subscribing to naturalism, and so a consideration of the versions of naturalism that can be ascribed to Hegel is necessary for our inquiry. Let us begin with naturalism in general and the versions of naturalism to which Hegel evidently is *not* inclined.

2.3 Refutation of naturalism in Hegel

One of the main problems in the naturalism debate is that it has become commonplace to claim that naturalism is an indefinable and vague term. Even among self-announced naturalists it looks like it became a rule not to define it, as Hilary Putnam ironicized it.[14] In the following I will outline a preliminary definition for naturalism that will be later refined. In general, all sorts of naturalism stand for an approach in thought that gives priority to the natural, confines itself to it and concentrates on it depending each time on what it conceives as the natural. In Hegelian terms, naturalism would be a recurring default basic shape of an undeveloped consciousness that immediately takes its objects to be essentially other than itself. The

[13] Pinkard and Verene, who tell us about Hegel's natural study, do not call him a 'naturalist' on that account: Verene does not mention the term and Pinkard even argues that Hegel's drafts from 1802–1806 rather show that Hegel "needed a non-reductionist and non-naturalist account of the genesis of spirit out of nature" (2002, p. 187).
[14] In his essay "The Content and Appeal of 'Naturalism'" (Putnam, 2004, p. 59).

definition of naturalism in the glossary of *The Philosophy of Science* includes both the ontological and methodological aspects: naturalism is "the view that all phenomena are subject to natural laws, and/or that the methods of the natural sciences are applicable in every area of inquiry".[15] One special case of methodological naturalism to be later discussed is the epistemological naturalism which regards science as grounded in natural phenomena and therefore epistemology as an empirical natural science. Our question is whether Hegel adopts ontological, methodological or epistemological naturalism.

2.3.1 Ontological naturalism

In its broadest sense, ontological naturalism – also called metaphysical, philosophical or classical naturalism – is descriptive and holds that all is nature; that is, the being as a whole is equivalent with nature and hence all entities are natural, including the human mind. The mitigated form of ontological naturalism articulates that the whole of reality, i.e. the whole cosmos or universe, is exhausted by what nature is and subjected to nature's laws. Such monist pan-naturalism is at least as old as the moment Thales of Miletus formulated his principle of *hydor*, arguing that everything that exists consists out of the same moist natural substance. This widespread stance has been restored, upheld and renewed in modern times by David Hume and the French materialists around Paul-Henri Thiry D'Holbach. Several forms of this classical naturalism still enjoy popularity, for instance, in the works of Daniel Dennett and Paul Churchland under the title 'eliminative materialism'.

[15] By Boyd, R., Gasper, P., and Trout, J. D.A. Cited by Putnam (2004, p. 60).

It is agreed among Hegel scholars, who take Hegel to be some kind of naturalist, that Hegel is "not a total naturalist".[16] Hegel cannot be said to subscribe to such reductive naturalism,[17] as he rejects that "everything ideal, normative and formal is explicable according to laws of nature".[18] It is taken to be trivial that "Hegel pits himself against naturalistic approaches of a physicalist, reductionist or eliminativist type".[19] It is indeed plausible to claim that Hegel did not identify his philosophy with classical naturalism, which he saw as embodied in Spinozism.

However, the negation of classical naturalism in Hegel has a rhetorical role in the naturalistic argumentation, namely to prepare the ground for the affirmation of other kinds of naturalism in Hegel. All the authors that suggest some kind of naturalism in Hegel open their argument with convincingly repudiating any kind of "hard" naturalism in Hegel. At the same time, no author in the Hegel debate provides us with references to Hegel's own words on naturalism, let alone commentary on them. Hegel's reaction against classical naturalism had sunk into oblivion to the extent that it seems that "Hegel never explicitly talks about naturalism in his writings".[20] It was forgotten that Hegel uses this term several times and even expands on it, always in a pejorative context and while clearly taking a stance against it. The significant cases that are of interest here will be shortly outlined.

Hegel belittles naturalism for the first time in his withering assessment of Schulze's philosophical system. The latter is nothing more than a "mere

[16] DeVries, 1988, p. xii.
[17] Cf. Pippin, 2008, p. 33.
[18] Beiser, 2002, p. 598, note 4.
[19] Tesla, 2013, p. 35.
[20] Papazoglou, 2012, p. 74.

naturalism [...] with artificially inlaid formulas".[21] In his empiricism critique in the *Encyclopaedia Logic*, Hegel supplies a still-pertinent basic determination of naturalism, arguing that "the consistent system of empiricism is materialism, or naturalism. – Kant's philosophy sets the principle of thinking and of freedom in strict opposition to this empiricism".[22] Kant himself also disparages naturalism, namely as pre-philosophical "pure misology".[23] Hegel defines classical naturalism more precisely in his interpretation of Vanini's naturalism in the *Lectures on History of Philosophy* as the belief "that it is Nature that is the Deity, that all thing have a mechanical genesis".[24] Vanini "explained the whole universe in its connection by efficient causes alone, not by final causes".[25] Hegel's definition of Spinozistic naturalism may seem today to the reader to be irrelevant for the naturalism debate because one does not associate naturalism with pantheism, but this definition does expose one of the old roots of the still-existing logical problem in the very concept of naturalism: its totality-claim. To underline his objection to naturalism, Hegel derides the "superficial" and "dull" works of French materialists and naturalists, such as D'Holbach's *The System of Nature*.[26] It is difficult not to hear the anti-naturalistic critique and the mockery.

In contrast to these clear reservations, there is only one place where Hegel seems to praise naturalism, claiming that it has overcome the

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[21] In a book review in his and Schelling's *Critical Journal of Philosophy* from 1802. The original text: "*bloßer Naturalismus, mit [...] Formeln künstlich eingefaßt*" (2/279).
[22] Hegel, 1991, p. 107, § 60; 8/145.
[23] Kant, *Critique of Pure Reason*, B 883: "*reine Misologie*".
[24] Hegel, 1995b, p. 139; 20/41.
[25] Ibid.
[26] 20/294: "*Die Gedanken sind sehr oberflächlich*, le grand tout de la nature *ist das Letzte; das ganze wiederholt sich auf allgemeine Weise, die Darstellung ist matt*".

"positive element in religion".[27] By "religion" Hegel means any dogmatic doctrine which is based on absolute faith, not on the "negative" element of thinking. Herewith, Hegel recognizes the value of historical naturalism as a possible cognitive stance within the wide system of philosophical attempts. However, immediately after his positive words, Hegel sharply denounces the same naturalism for its three mistakes: misidentifying the absolute as something present, denying natural and spiritual purposiveness, hence freedom, and only reaching to insufficient dead abstractions of "a nature undetermined in itself, to sensation, mechanism, self-seeking, and utility".[28] The last reproach is undoubtedly Hegel's most intensive attack on the basic view of naturalism.

In view of such strident criticisms, a naturalistic reading that completely ignores Hegel's own thoughts on naturalism paradoxically shows a much more historicist attitude than it would wish. This anti-philosophical gestalt of thought historicizes the meaning of the word 'naturalism' in Hegel's time to the ridiculous degree that any judgment on Hegel's relation to naturalism must ignore, from the beginning, Hegel's words on the topic, or otherwise risk "anachronism".[29] But this would be absurd because any meaningful reading of older philosophical texts would be made almost impossible. The strongly historicizing view presumes that Hegel necessarily reflected on a historical variant concept of naturalism, allegedly totally different from ours and hence outmoded or obsolete. Fully disregarding, however, direct textual findings concerning Hegel's words on naturalism would prevent us from scientifically reaching Hegel's text as an object to which we can turn if we would like to prove or comment on what Hegel says. With the historicist objection in mind, and aiming at

[27] Hegel, 1995b, p. 384; 20/291.
[28] Ibid., p. 385; 20/291f.
[29] Cf. Papazoglou, 2012, p. 74.

minimizing the risk of anachronism, the further question arises as to what other kinds of naturalism Hegel would reject.

2.3.2 Methodological naturalism

Methodological naturalism is the result of the modern empiricist critique of scientific methodology: it regards the empirical methods of natural science, like observation, sense data analysis, experiments and statistics, as the only proper way to true knowledge. Methodological naturalism has thus a prescriptive character, not merely descriptive, and it is commonly considered to be an obligatory attitude in science: objects worthy of scientific investigation must be examinable by strictly empirical tools.

It is generally evident that, besides in his short time as a natural historian, Hegel did not employ such empirical methods in his philosophy, perhaps with the exception of the phenomenological *Zusehen*, his own version of observation. In spite of this, there is one passage in the "Philosophy of Nature" which is brought forward as conclusive proof for the empirical naturalistic element in Hegel's thought:[30] "Not only must philosophy be in agreement with our empirical knowledge of Nature, but the *origin* and the *formation* of the Philosophy of Nature presupposes and is conditioned by physics".[31] Without any context, these words *seem* to incriminate Hegel as a confirmed methodological naturalist, as Pinkard rightly notes.[32] However, as we understand from the rest of the text, this statement only goes to show that Hegel does not affirm a principal collision between "philosophy" and our "experience of nature", our *Naturerfahrung*, which is somewhat mistakenly rendered in Miller's translation as "our

[30] Cf. Westphal, 2003, p. 52.
[31] Hegel, 1970, p. 6, § 246 note; 9/15.
[32] Cf. Pinkard, 2012, p. 19.

empirical *knowledge* of Nature". Hegel describes the process of human experience, and a fortiori the process of knowledge, as also involving conceptual rational elements, even if physicists are unaware of them as such. Therefore, Hegel's main critique is that the empirical natural sciences are not as empirical as they maintain because they use a priori methods like mathematics and logic. He ironically comments: "the principal charge to be brought against physics is that it contains much more thought than it admits and is aware of, and that it is better than it supposes itself to be; or if, perhaps, all thought in physics is to be counted a defect, than it is worse than it supposes itself to be".[33]

Thus, in spite of the usual self-understanding of empirical knowledge as going beyond logical-philosophical knowledge, Stekeler argues that one of Hegel's core insights into the status of science is that in effect "the sciences do not collect empirical facts, but rather develop the conceptual realm, the forms of demonstration and theories. They thus work on the verbalization and schematization of general knowledge, general – especially in regard of time".[34] Hegel does not think that the physicists or the mathematicians can fully explicate the general content of all the concepts used in their science. In this, Hegel brings to mind Aristotle, who integrates in his inquiry of the being as being the investigation of the axioms of the particular sciences, including mathematics, as the task of the "first philosophy". Sensing the mereological fallacy resulting from the pretensions of natural sciences to answer what nature *is*, Aristotle argues:

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[33] Hegel, 1970, p. 3 "Introduction"; 9/11.

[34] Stekeler, 2014, p. 50: "[D]*ie Wissenschaften sammeln gar keine empirischen Fakten, sondern entwickeln eher das Begriffliche, die Darstellungsformen und Theorien. Sie arbeiten also an der Versprachlichung und Schematisierung von* allgemeinen, *insbesondere zeitallgemeinen Wissen*".

> "For this reason no one who is pursuing a particular inquiry – neither a geometrician nor an arithmetician – attempts to state whether they are true or false; but some of the physicists did so, quite naturally; for they alone professed to investigate nature as a whole, and Being. But inasmuch as there is a more ultimate type of thinker than the natural philosopher (for nature is only a genus of Being), the investigation of these axioms too will belong to the universal thinker who studies the primary reality".[35]

Beyond this ancient criticism, but in connection herewith, Hegel argues that the "finite" nature depicted by natural sciences is not the whole or the absolute that one looks for, so that one ought not to accept the results of the natural sciences as the absolute idea.[36] As Pinkard has shown in his excellent analysis, for Hegel, the philosophy of infinite spirit explicates the essence of nature even better than philosophy of nature.[37] Before him, Brandom claimed something very similar and weighty in saying that: "[t]he deployment of the vocabulary of the natural sciences (like that of any other vocabulary) is itself a cultural phenomenon, something that becomes intelligible only within the conceptual horizon provided by the *Geisteswissenschaften*".[38] It was thus justly argued that Hegel only demands from philosophy some kind of compatibility with natural science, but certainly not identity, for natural science is just a presupposition in the

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[35] Aristotle, *Metaphysics*, book 4, 1005 a40–50.
[36] Pinkard also claim this (Cf. Pinkard, 2012, pp. 19ff), only that he sets Hegel's critique of natural science against Aristotle, whom he unquestioningly regards as the naturalist *per se*. Pinkard also argues that "Hegel has no quarrel with the natural sciences", while Hegel, beyond stressing the use of concepts in empirical research, does attack scientific theories, e.g., Newton's theory of gravitation and vulcanism vs. neptunism in geology.
[37] Cf. Pinkard, 2012, pp. 20f.
[38] Brandom, 2000, p. 33.

sense of a starting point for philosophy.[39] Finally, Hegel considers the 'being on-the-way' towards truth, i.e. the philosophical 'meta-hodos', to be neither natural-empirical nor mathematical, but purely logical, while describing in the *Phenomenology of Spirit* the knowledge from merely sensual experience as having "the most abstract and poorest *truth*".[40] In the *Encyclopaedia Logi*c we find a similar formulation regarding the category of pure being as "the poorest and the most abstract one of all".[41]

There is a particular epistemological version of methodological naturalism which takes empirical natural science to be the only proper way to true knowledge of knowledge. This version is significant to our guide question concerning Hegelian philosophy of science and therefore I will dwell on it in the next section. As Popper rightly argues, methodological naturalism is "uncritical" insofar as it positivistically takes the human experience to be a "programme, not a problem", while presupposing the meaning of the terms science and scientist.[42] Such naturalism is thus led to regard epistemology itself as a "study of the actual behaviour of scientists" and so to become doxastic epistemological naturalism, and we would add, à la Quine.

Quine is certainly one of the most influential philosophers in the twentieth century and some of his topics are related to Hegel's. In fact, they

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[39] Cf. Papazuglou, 2012, p. 23. Yet, citing Hegel directly from Pinkard while ignoring Pinkard's critique, Papazuglou reproaches Pinkard for not understanding the citation and falsely holding Hegel to be a Quinean naturalist – exactly what Pinkard rejects.

[40] Hegel, 1977, p. 58; 3/82.

[41] Hegel, 1991, p. 99, § 51; 8/136.

[42] Popper, 2002, pp. 30f. Popper criticizes the fact that positivistic naturalists "see empirical science as a system of statements which satisfy certain *logical criteria*, such as meaningfulness or verifiability" (ibid., p. 28), and in this sense, Hegel can be considered a naturalist too. Popper adds, though, that positivistic naturalists reject in empirical science the "susceptibility to revision", i.e. *criticizability*, and regard non-empirical science as "meaningless" or "nonsense", a view which is certainly not Hegelian.

opened a door to the renewed interest in Hegel's philosophy for contemporary philosophy, namely through the critique of the myth of the given by Wilfrid Sellars, one of his students. This interest is reflected in the Pittsburgh School of John McDowell and Robert Brandom. I will attempt to show that some of Quine's epistemological conceptions have found their way to some of the contemporary interpretations of Hegel's philosophy of science. This influence of Quine's naturalistic-pragmatic epistemology on some of Hegel's interpreters remains veiled and inexplicit. The problem with ignoring this influence is that some of Quine's theses represent, at the same time, a clear opposition to Hegel. We will therefore begin by clarifying the relations between the core ideas of Quinean naturalism and the main features of Hegelian philosophy of science.

2.3.3 Epistemological naturalism

It is worth comparing Quine's approach to epistemology with Hegel's as it was Quine who helped, in a certain sense, to make Hegel's return possible in Anglophone philosophy in the twentieth century. Quine's holism influenced the views of Richard Rorty and Wilfrid Sellars, who were the first to speak of Hegel with much respect in the tradition of analytic philosophy, thus bringing Hegelianism back to life once again. Before the analysis of Quinean naturalism and the discussion of whether Hegel promotes it or not, it is important to note that Quine's philosophy does have some elements in common with Hegel's. Quine's essay "Two Dogmas of Empiricism" (1951) marks a turning point in the history of analytic philosophy, precisely because it goes against two clearly Anti-Hegelian projects: Russell's logical atomism and Carnap's logical positivism. In this essay, Quine explicitly aims at reaching "a blurring of the supposed

boundary between speculative metaphysics and natural science"[43] by suggesting what appeared to be Hegelian semantic holism: "The unit of empirical significance is the whole of science".[44] Quine, who was more informed in the foundations of logic than physics, broke with his teacher Carnap and his Kantian anti-metaphysical commitment to mathematics as a foundation for empirical science, while, in a way, turning Helmholtz on his head. The relation between Quine and Carnap can be thus roughly compared with that of Hegel and Kant. Quine himself acknowledged idealistic influences in his critical conception of the notion[45] and mentioned Hegel's conception of truth, embodied in his dictum "the true is the whole", as a "message" he appreciates.[46] Brandom even finds an explicit affinity between Hegel and Quine: "it was the young Hegel who first appreciated the line of reasoning, made familiar to us by Quine in 'Two Dogmas'".[47] It is thus worth rethinking the relation of the two thinkers in order to achieve a deeper understanding of the question of knowledge of knowledge. In what follows, the relevant features of Quinean naturalism are presented along with Hegel's possible response.

[43] Quine, 1951, p. 20.
[44] Ibid., p. 42.
[45] Cf. Quine, 1960, p. 67.
[46] Cf. Quine, 1987, p. 28; cited also in Welsch (2003, p. 15) who names Schuldenfrei's essay "Quine in Perspective" as affirming an analogy between Hegel and Quine, as well as Quine's mentor, Burton Dreben, who is mentioned by Schuldenfrei as someone who can reassert this connection.
[47] Brandom, 1994, p. 92. Cited by Welsch (2003, p. 15). Quine's line of reasoning, however, does not lead directly to Hegel's view of knowledge, as we shall see.

2.3.3.1 The psychologistic approach: science as a natural phenomenon (Quine)

Quine's general argument is that the human knowing subject is naturally embodied, and for that reason, knowledge itself grounds in empirically examinable natural phenomena. His conclusion is that epistemology should be pursued as a natural empirical science. The question arises as to what epistemology *is* according to Quine, and whether Hegel shares this thought.

Quine defines epistemology as the study of "the foundations of science", i.e. of how to "reduce" science to a more evidential knowledge.[48] He suggests, however, that epistemology should ground "natural knowledge" on "sense experience".[49] While doing so, Quine merely presupposes that "sense experience" is nothing other than the observation-enabling neural process of perception: "it is simply the stimulation of our sensory receptors that are best looked upon as input to our cognitive mechanism".[50] Furthermore, he does not draw any distinction between "natural knowledge" and "natural science" and uses them interchangeably. By "natural knowledge" he does not mean, like Hegel, a mere belief, an "immediately" given *doxa*, but rather real scientific knowledge of nature. Thus, the aim of "grounding natural science"[51] only means to him "justifying our knowledge of truths of nature in sensory terms",[52] while strictly negating other foundations like "rational reconstruction", proof "in a firmly logical way",[53] or any activity of "consciousness".[54] In this, Quine

[48] In Quine's essays "Naturalized Epistemology" (1969, pp. 69ff).
[49] Ibid., p. 71: "Just as mathematics is to be reduced to logic or logic and set theory, so natural knowledge is to be based somehow on sense experience".
[50] Ibid., p. 84.
[51] Ibid., p. 74.
[52] Ibid., p. 71.
[53] Ibid., p. 74.
[54] Ibid., p. 84.

echoes Aquin's and Locke's sensualist notion that *nihil est in intellectu quod non prius fuerit in sensu,* while ignoring the rationalist Leibnizean reply that *nisi intellectus ipse*. Even if the latter does not establish a complete opposition to the sensualist model of cognition, it is still a considerable supplement, if not correction. This supplement is exactly what Quine seems to ignore.

Quine formulates his naturalist thesis in the following famous passage: "Epistemology [...] simply falls into place as a chapter of psychology and hence of natural science. It studies a natural phenomenon, viz., a physical human subject".[55] Both *episteme* and *epistemology* are 'naturalized' in one stroke as being based on biological sensory receptors. This ontifying biologization is a form of naturalization that grasps epistemology as the empirical study of natural phenomena, neither logical nor phenomenological. Even if Hegel roughly agrees with Quine that epistemology "falls into place as chapter of psychology", namely as the highest part of "Subjective Spirit" in the *Encyclopaedia*, Hegel still thinks that to regard psychology only as natural science, as Quine does, is nothing but a bad form of empiricism and formalism. In fact, Quine's argument implicitly goes against Husserl's conception of non-psychologistic and non-biologistic epistemology, his transcendental phenomenology. Thus, Quine can be said to develop a kind of *anti-transcendental-phenomenology* which generates the psychologistic concept of science anew, based now, as Quine states, on more accessibility to recent results of empirical cognitive psychology.[56] But in contrast to the old logical psychologism of John Stuart Mill's *System of Logic* (1843), which has taken the foundations of science, i.e. the logical laws, like the contradiction law, to be naturally generated by

[55] Ibid., pp. 82f.
[56] Cf. ibid., p. 83.

common human experience, Quine's sophisticated neo-empiricism defines science as a heritage that should be itself pragmatically "warped" to fit the sense data of our "sensory promptings".[57]

In this way, Quine's "Naturalized Epistemology" is the result of a double back-inversion: from the old rational and anti-psychologistic epistemology of the Vienna Circle to his novel empirical and psychologistic epistemology. This movement of thought is significant to our science question because, in contrast to Hegel, "the conscious form" or "awareness" no longer has any meaning in Quine in so far as consciousness does not possess anymore any explanatory role.[58] Quine's view of nature as the stimulator of sensory receptors is in fact a mechanistic worldview. That which provides science with evidence is for him nature, and not consciousness, as it enables observation, which is his criterion for founded knowledge. Quine praises such a mechanistic relation between nature and evidence as the main feature of naturalist epistemology,[59] while relapsing, like Russell, into a pre-Kantian and pre-Hegelian mechanistic worldview.

Quine's definition of epistemology presupposes several interrelating problematic assumptions which will be outlined here, combining Hegel's relevant considerations.

(1) *Absolute physicalism of the subject.* Quine assumes that sense experience corresponds exclusively to the physical aspect of the human subject: the neural sensory receptors. Purely logically, this implies that

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[57] Quine, 1951, p. 46.

[58] Quine 1969, p. 83: "In the old epistemological context the conscious form had priority, for we were out to justify our knowledge of the external world by rational reconstruction, and that demands awareness. Awareness ceased to be demanded when we gave up trying to justify our knowledge of the external world by rational reconstruction. What to count as observation now can be settled in terms of the stimulation of sensory receptors, let consciousness falls where it may".

[59] In his last work *The Pursuit of Truth* (1992, p. 19) Quine confirms this view, back to which Dennett's philosophy of mind and the rise of cognitive science can be traced.

there is at least another possible aspect of the overall human subject, a non-physical one, one that Quine himself, however, does not refer to, let alone acknowledge. Quine excludes the possibility that knowing is the act of a reasonable conscious being that is not only physical in its essence. In a way, Quine's physicalism of the subject is skeptical about reasonability and can be called into question by arguing that the sensory receptors themselves, as particular biological cells, are not the subject itself in the sense of the knower, as they do not know that they are the knower. They are not the knower as a whole, for they are not the human being as such.

Like Quine, Hegel acknowledges the existence of such a phenomenon of sense experience as well as its role in the grounding of knowledge. Yet, Hegel does not attach sense experience exclusively to the physical human subject, but also to the phenomena of the thinking spirit, the *Geist*. Hegel ascribes experience (*Erfahrung*) to consciousness: what consciousness experiences is the object as a certain shape of the concept. Hegel takes advantage of the German language and mobilizes the term "experience", as he uses the verb *erfahren* to indicate the conceptual movements that consciousness performs between the subjectivitiy of the for-itself and the objectivity of the in-itself within its objects. As a matter of fact, Hegel does not consider any realm of knowledge, even the most simple, quotidian, and minimal as lacking a conceptual form. Even the most immediate contents of sensory reception consist, if they are to be comprehended by humans, in basal linguistic units such as "this", "here", "now", or "I". Even if the human knowing subject can be said to be naturally embodied, the very act of knowing, as with any other action, is performed by the subjective self-conscious spirit, just as volition emerges due to the free work of such spirit. Such an action, per definition, does not happen causally, due to a physical-objective reaction in the spatiotemporal realm.

Therefore, Paul Redding rightly argues that Hegel holds against Quine that "while we are each fundamentally limited and conditioned in our particular cognitive capacities, we are, nevertheless, in virtue of our rational natures, somehow capable of going beyond those limits".[60] Redding has correctly identified the fact that Hegel grounds the cognitive capacity of human beings in nothing other than "the *recognitively* intersubjective structures of spirit to which we all belong".[61]

(2) *An insufficient neuroscientific concept of nature*. Quine defines nature as that which stimulates the sensory receptors and in this way enables sense experience, which in turn enables natural knowledge without any assistance from other sources. Quine's subjectifying concept of nature qua knowledge-generator can be called into question by arguing that *nature per se* also exists as a sensory stimulator in the animal world. Non-human animals, however, do not generate natural science. Without the capacity of human recognition, there can be no science, because understanding nature as a whole consists in recognizing a conceptual scheme that needs to be recognized as such by the recognizer.

In a similar way to Quine, Hegel also considers nature as sensually experiencable "externality" and as that which can stimulate the sensory receptors of some developed natural forms, like intelligent animals. Yet, Hegel goes beyond this and treats nature as the *Idee*, and more precisely, as the finite, non-thinking self-manifestation of the *Idee*, hence as a contradictory and questionable conceptual form. He argues that nature does not hold in itself the concept (*Begriff*) of itself as *idea* and hence is not self-conscious, as spirit is. Moreover, it cannot *cause* knowledge, as spirit can, for knowledge is the result of the basic activity of spirit. We will examine

[60] Redding, 2007, p. 222.
[61] Ibid.

further aspects of Hegel's non-naturalistic concept of nature in more detail in 2.5.

(3) *Psychology as natural science*. Quine identifies the knowing subject as the human *soul* and therefore refers to the study of knowledge as "psychology". Philosophically informed psychology, however, ought not to grasp the human soul only under the biological aspect of its natural life, as Quine does, but also under the intellectual aspect of its cognitive and linguistic abilities. Hegel would call it the *geistige* aspect. The human subject must not be only subjected to an empirical inquiry with natural-scientific methods.

Like Quine, Hegel identifies an initial "natural moment" in the soul. Yet, he analyzes the features of the knowing subject as "natural soul" in his "Anthropology", not in his "Psychology", which explicitly treats spirit as spirit, not as "natural soul". Even though Hegel conceives, like someone who is naturalist about the mental, the first moment of spirit, the "life" of the "physical soul", as part of the general "natural life", that is, the soul as *Naturgeist*, he does not interpret the activity of spirit only in the context of natural life.[62] In contrast to Quine, Hegel's chapter on "Psychology" is not accommodated in "Philosophy of Nature", but rather in "Philosophy of Spirit", where the independent spirit goes beyond nature back to itself.[63] Spirit, which only has a vague clue of itself in nature and does not really find itself in it, clearly goes beyond mere natural life and becomes independent. This means that the spirit attains its own 'self' and is *selbständig*, 'stands by itself', while ruling the universe – in the broadest sense – with its power of thought. Hegel's conclusion that "the general natural life" as a whole is "only a subordinated moment" in the spirit and

[62] 10/53f, § 392, *Zusatz*.
[63] 10/17, § 381.

that the spirit is exactly "this elevation above nature and natural determinacy"[64] brings to distinctive expression the supremacy of spirit over nature, especially in the question of knowledge. It follows that, even if Hegel holds that epistemology can be indeed reduced to psychology, it is definitely not a natural science.

(4) *A leveling concept of science*. By "science" Quine means only "mathematics and natural knowledge", and does not take into consideration other realms of knowledge, such as the social, political or historical, which epistemology as a whole should account for. The naturalist concept of science takes the object of science to be always nature, but neither in the sense of the inborn character of things, i.e. how they are from their innate *natus*, nor in the sense of φύσις, as what germinates or what shows itself through itself. Rather, the naturalist concept of science usually takes the object of proper science to be the non-human world. If one agrees that science includes more than just mathematics and natural science, then Quine's "naturalized epistemology" is nothing but an incomplete epistemology that focuses only on two spheres of scientific activity and so levels the concept of science.

Hegel's *Geist*, in contrast, is a generic subject, an institution, like science and the scientific community. As an epistemological agent, the *Geist* produces the sciences with the help of generic concepts, the products of its own work of thinking. *Geist* is what explains nature, but also other objects of inquiry. It does so by articulating the rules of law, state, society, art, culture and religion, and by interpreting the logical relations between them.

[64] Hegel, 2007, p. 165, § 440; 10/230.

Beside these problematic assumptions, it is also dubious whether Quine's semantic holism has the same character as Hegel's holism. As Brandom explains, Quine's holism implies

> "that if the content of a claim must at least determine what follows from it (what else it commits one to), then since what a claim commits one to depends on what collateral commitments are available to serve as additional premises ('auxiliary hypotheses'), the significance of undertaking any particular commitment cannot be determined without appeal to the contents of all those collateral commitments".[65]

Because of this claim, Quine is known as the 'holist' per se, the anti-elementarist who dares to arrive at conclusions about the whole of science. Yet, for Hegel, Quine's semantic holism would be just too little, for it would only mean a kind of theory-holism.[66] The young Hegel did claim once that every part gets the "meaning and significance it has solely through its coherence with the whole".[67] But in *Phenomenology of Spirit* Hegel speaks about much more, namely about the correlations between the structures of self-cognition and the purported objects of cognition. Hegel's conception of such 'totality' of knowledge is genuinely philosophical and not convenient or pragmatic, because it implies that there must always be another differentiation to take into account.[68] Such a conception acknowledges that the most precise determination is only attained after the consideration of all other possible determinations. Hegel's holism is thus not as pragmatic as Quine's. Instead of recommending being pragmatical

[65] Brandom, 1998, p. 92.
[66] Cf. Welsch, 2003, p. 48.
[67] In the *Difference* essay (1977a, p. 98; 2/30).
[68] Cf. Welsch, 2003, p. 45.

about the empirical realm, Hegel analyzes a long series of forms of consciousness and shows how each time the consciousness and the object are correlated, how consciousness moves from one object to the other so that each object becomes a "moment" in the experience of consciousness. Each form solves a former contradiction through *Aufhebung*; but this does not mean that the former forms are lost, rather that they are contained in the new forms, just like Descartes's mechanics is not completely contradicted by Newton's dynamics, which makes some use of such mechanics, and like Einstein's relativity theory does not wholly reject Newton's dynamics. In this way, object and consciousness are for Hegel interdependent, not detached, and their conceptual "correlations" or "congruencies" (*Entsprechungen*) together make a whole. Hegel's idea of totality ought thus not to be understood only as the multitude of objects in the world (*objektive Totalität*) or only that of concepts or consciousness (*subjektive Totalität*), but of both, in one logic of determinations. The Hegelian talk about the totality of the highest knowledge is just another formulation for the reflective situation of self-knowing.

2.3.3.2 The behaviorist approach: knowledge as a natural kind (Kornblith)

The difficulties with Quine's conception of science did not prevent his adherers from attempting to complete his thought in a popular direction, one that led to a remarkable counter-Hegelian epistemological position: knowledge is a "natural kind", just like water. This diagnosis results from a widespread materialistic view worth rethinking here because its core idea seems to have tacitly inspired some of the recent arguments of the naturalist interpreters of Hegel. In his work *Knowledge and its Place in Nature* (2002), Hilary Kornblith, one of Quine's most loyal followers, outlines an ethologistic approach toward knowledge. Although such a

naturalistic epistemology is not being explicitly admitted by Hegel interpreters, one can detect its traces in some of them. The reconstruction of Kornblith's behaviorist argument will help to understand Hegel's response to epistemological naturalism.

Kornblith postulates that human knowledge must somehow be intrinsically located in nature. Therefore he does not hesitate to recommend the "investigation of knowledge, and philosophical investigation generally, on the model of investigations of natural kinds".[69] Kornblith supposes in advance that phenomena of knowledge are "something outside of us", while he himself recommends avoiding conceptual analysis of knowledge, the investigation of a priori truths about knowledge, of intuitions about it or reflections on it, because they all presuppose what knowledge is.[70] Kornblith's quasi-phenomenological paradigm is nothing other than inductive gemology. That is, he compares analyzing phenomena of knowledge with making generalized inferences about stones from gathering different stones.[71] By "phenomena" he understands only natural phenomena of animal life, and not, for example, phenomena of consciousnesses, so that as a result, he regards logic, like Mill before him, as "an empirical affair".[72] Kornblith ensures that he relies on the recent results of empirical research in cognitive ethology, the study of animal's cognitive behavior, arguing that the literature of this research frequently employs the category of knowledge in regard to animal cognitive capacities.[73] Daniel Dennett, another Quinean theorist of mind, recommends a similar behavioristic method to understand the mind,

[69] Kornblith, 2002, p. 11.
[70] Cf. ibid., p. 11.
[71] Cf. ibid., p. 10.
[72] Ibid., p. 22.
[73] Cf. ibid., pp. 28–32.

namely to analyze the language of computer scientists and cognitive neuroscientists.[74]

Since ethologists say that ravens "know" how to distract when they "believe" they would get their prey and that birds "know" in which direction to fly when they "desire" to migrate again,[75] Kornblith concludes that some animals have knowledge in the sense of "intentional states" like "beliefs and desires", not just "a representational system of information-bearing states", as plants have,[76] and not just mere "internal states that are bearer of information", as thermostats have.[77] Kornblith, who is a typical epistemological Darwinist, describes animal knowledge as "a product of natural selection" that helps animals to fit the world and survive their environment[78] as well as to satisfy their needs and desires.[79] He even goes so far to designate knowledge as a "natural kind", i.e. a "homeostatically clustered property", a "well-behaved" and "stable unit", like water.[80] He disagrees with Davidson's claim that knowledge has to do with belonging to a lingual community or with Brandom's claim that knowledge has to do with the social practice of offering and asking for reasons.[81] Instead, he names the least common denominator: knowledge is a "feature" of the natural world.[82] Kornblith insists that animals know even if they do not know that they know, that is, even if they do not possess an internalist concept of knowledge in the form of introspection or reflection. This raises

[74] Dennett, 2003, pp. 86ff.
[75] Kornblith, 2002, p. 38.
[76] Ibid., p. 42.
[77] Ibid., pp. 36f.
[78] Cf. ibid., pp. 58–62.
[79] Cf. ibid., pp. 160f.
[80] Ibid., p. 62. The term 'natural kind' is taken from Quine's "Natural Kinds" (1969a).
[81] Cf. ibid, p. 64.
[82] Ibid., p. 165.

the question as to what are the conceptual consequences of such a concept of knowledge. In other words, what does it mean to know in this sense?

Following Kornblith, it is indeed plausible that intentional behavior of non-human animals evokes the impression that knowledge is natural, at least to some degree. Yet, Kornblith's Darwinian-like line of thought grounds the general idea of knowledge neither in logic, nor ethics, nor history, nor phenomenology, but rather in animal ethology. A challenging consequence of this popular doxastic naturalism is that even science simply looks like a natural outcome of natural life. Kornblith's argument presents us with deficiencies that we will demonstrate along with some Hegelian responses.

(1) *The unmet empirical claim: empirical research vs. text analysis*. Kornblith does not only claim that animal knowledge is natural, but for him every form of knowledge is natural, as he claims: "Human beings do have cognitive abilities that other animals do not, but this does not show in any way that human knowledge is different in kind from the knowledge of other animals".[83] For Kornblith, the cognitive capacities of human beings differ only gradually from animal knowledge, neither qualitatively, nor essentially. His epistemological presumption is that no knowledge is non-natural.

Kornblith, however, only presents empirical research of animal knowledge, and none of human knowledge. When he comes to discuss human knowledge, he 'naturally' discusses, without justification, Descartes', Davidson's, and Brandom's philosophical texts on the same issues. The question is, under Kornblith's own premises, whether something like 'Brandom's knowledge of knowledge' is necessary for the survival of Brandom in the physical world. Kornblith has not shown why

[83] Ibid., p. 135.

this philosophical knowledge, and not Brandom's empirical knowledge of the physical environment, is necessary for proving his claim. What Kornblith does not explain is the identity he presumes between philosophical knowledge and animal belief. Is it really the same "kind" of "knowledge"? What is "kind" here? What is "knowledge" for Kornblith? Kornblith does not meet the self-appointed empirical task. Let us explain this typical fallacy of the empiricist approach towards epistemology.

Even in the part on animal knowledge, Kornblith does not include any firsthand empirical research such as self-conducted experiments; rather, he investigates *literature* about the empirical research of others without repeating any of the experiments. An inquiry is certainly not subject to prohibition against relying on reliable inquiries; however, if all experiments remain unrepeated and old results are not reassessed, such research involves the previous upshots and conceptions of other researchers and is thereby not truly purely empirical. Of course, he could claim that the study of literature is a kind of empirical research, but then he would have to admit that conceptions are included in the inquiry, and as such, does not involve exclusively non-conceptual objects as he declares regarding his inquiry. It is therefore evident that Kornblith, like other standard empiricist theorists, does not follow his own methodological recommendations: he does not ground his own knowledge of animal knowledge exclusively in the behavior of the animals themselves, but rather on language-based human agents. Paradoxically and interestingly, nothing other than the purely textual source seems to Kornblith to be a sufficient evidentiary basis for proving his empiricist thesis regarding the study of human knowledge. In fact, Kornblith's naturalist view corresponds to differential anthropology and denies the uniqueness of the production of scientific texts as a collective praxis of developing and maintaining knowledge over generations through written language, a knowledge which is not genetically

created. The other conception of science that one can call ‘transgenetical’ or ‘transgenerational’ refers to a cognitive capacity that is irreducible to a feature of animal knowledge.

This naturalistic position *seems* to echo Hegel, as he also speaks of “natural consciousness” (*natürliches Bewusstsein*). However, for Hegel this term indicates the basic shape of the “sensual consciousness”, i.e. the vigilance through the five senses and through awareness and attention. This “natural consciousness” can at most be the owner of a “natural opinion” or “natural assumption” (*natürliche Vorstellung*). Only the departure point of the Hegelian concept of knowledge is thus natural; that is, the initial moment of its development before consciousness becomes conscious of itself and turns to a correct understanding of the ‘good infinity’ of the *episteme,* to self-knowledge. The mere naturality of knowledge signifies for Hegel the lowest stage of spirit’s development. In fact, Hegel does not tend to speak at all of “natural knowledge” or “animal knowledge”, as the naturalists do, because for Hegel, as we learn from the chapter on “Subjective Spirit”, animals lack spirit in the strict sense and hence the capacity to think. Animals possess a sensing soul, but lack consciousness and thus knowledge, and this, in turn, because they lack *Vor-stellungen*, that which enables intentional mental states in the first place and thereby representations of ob-jects.

In order to come to conclusions regarding human knowledge, Hegel, in contrast to Kornblith and other behaviorists, does not insist on the need for empirical research on animal behavior, but rather on a detailed truth analysis of various *Gestaltungen des Geistes* corresponding to a set of existing general forms of knowledge, namely metascientific concepts. Hegel justifies the knowledge-claims of each shape of knowledge by transcending each time to a critical conceptual investigation of the relations between the consciousness and the object itself, not by stopping the

analysis after presenting the "natural assumptions" of each shape. Hegel thus denies the applicability of the methodology of natural sciences in philosophical epistemology.

(2) *The irrelevance of the question of consciousness*. Like Quine, who explicitly excludes the discourse of consciousness from epistemology, Kornblith denies the role of the study of consciousness in the question of knowledge, rejecting that the interaction of the self-consciousness with the world as well as its intersubjective relations with other agents are constitutive conditions for the cognitive evolution of the human mind and so of knowledge.

Like Quine and Kornblith, Hegel also declares that he investigates the pure categories of thought *not* as they appear to consciousness. This happens, however, in the *Logic*, not in his epistemology. In his undeclared epistemology, which explicates the foundations of knowledge and can be partly also deduced from the *Phenomenology of Spirit*, Hegel does not tear apart the idea of consciousness from the ideas of knowledge and science. It is evident that consciousness, as *Bewusstsein*, is conceptually interlaced with the terms *Wissen* and *Wissenschaft*. *Bewusst-sein* is a form of *Sein*, a form of being, which relates per definition to other beings through *wissen*, the act of knowing. Since Hegel explores the truth of the phenomena of knowledge by asking about the qualities of the relations between the object and concept in each given form of consciousness, Hegel's critical epistemology does not, and cannot, belong only to natural science. As a matter of fact, in contrast to Quine and Kornblith, Hegel's epistemological considerations, be it in the form "Phenomenology" or even "Psychology", are never located in "Philosophy of Nature", but in "Philosophy of Spirit".

Leaving the philosophical question of knowledge to the natural sciences, naturalistic epistemology loses the justification for its own existence, scores an 'own goal' and furthers its own demise. Epistemology,

if it is to be a self-determined endeavor, needs to ground the idea of knowledge in itself.[84] The Quinean division between science and consciousness, that led to epistemology as a part of natural science, ends up by being a *self-terminating* concept of philosophy of science, and not a constructive form of *self-determining* philosophy of science. The naturalistic skeptical abandonment of the *Geistige*, i.e. the normative realm in which the orientation towards values in science takes place, is actually another form of gratuitous "self-animalization" of the human, which implies a "*sacrificium intellectus*" and a betrayal of the idea of self-conscious science.[85] One way to avoid such self-termination of thinking is reflected in Plato's conception of coming from doxa to episteme by means of *logos* that let see and produce a self-aware dialectical doxology. In Hegel's epistemology, in contrast to Quine's, knowledge does not consist only in a 'natural kind', but also in what we may call a 'logical kind', in having *logos*, the conceptual element of a thinking language which makes it initially possible to acknowledge the intentional *as* intentional, to recognize reason *as* reason.

Kenneth Westphal thus rightly claims that Hegel does not subscribe to naturalism "in one of its currently popular senses in epistemology, that the only genuine justification is natural-scientific justification", but rather "accepts natural-scientific justification within scientific knowledge, while maintaining that other forms of justification are available in other domains of knowledge, and especially in philosophy".[86] The Hegelian immanent critique of scientific knowledge has nothing to do with the Quinean anti-rationalist version of naturalism, because even though Hegel, like Quine,

[84] For further critique of 'naturalized epistemology' see Kim, J., "What is 'Naturalized Epistemology'"? (2004).
[85] Cf. Stekeler, 2014, pp. 293f.
[86] Westphal, 2003, pp. 52f.

criticizes positivistic metaphysics, i.e. the old scholastic enterprise, he does not deny the possibility of consciousness to become a "concrete infinite".

In spite of all these evident negations of naturalism in Hegel, there are claims for Hegel's idiosyncratic versions of naturalism. According to these claims, Hegel treats the spirit, construed sometimes as humanity or society, essentially as a natural phenomenon or as conditioned through natural phenomena. Let us examine these claims carefully.

2.4 Naturalistic readings of Hegel and their deficiencies

The commonality of arguments for Hegel's own version of naturalism is reflected in the structure of first refuting ontological, methodological and Quinean naturalism, just as we did until now, and then, in order to 'save' Hegel's scientific project, finding a weak or soft version of naturalism, mainly about the *Geist*, as the thinking spirit, but also about the normativity of human society. We will examine the exemplary naturalistic interpretations in order to reconstruct their arguments, offer questions, and share critical thoughts.

2.4.1 Naturalism about the mental

2.4.1.1 Spirit as "powers within nature" (Beiser)

Frederick Beiser's interpretation of Hegel is thoroughly committed to naturalism about the mental. Beiser suggests that, for Hegel, "spirit is only the highest degree of organization and development of the organic powers within nature",[87] and that, therefore, Hegel explains the "transcendental

[87] In his Introduction to *The Cambridge Companion to Hegel* entitled "Hegel and the Problem of Metaphysics" (Beiser, 1993, p. 9).

self-consciousness according to its place within nature".[88] Beiser designates Hegel's view as nothing other than a "form of scientific naturalism":[89] "everything subjective, mental, or conscious is explicable according to laws of nature", not only "everything objective, physical, or material".[90] In a rhetorical fashion that exploits the 'false dilemma', Beiser only offers clearly bad alternatives to naturalism: determinist historicism, positivistic mysticism,[91] or "a form of speculation about supernatural entities, such as God, Providence, and the soul".[92] He gives his own explanation for Hegel's alleged ontological naturalism: "Schelling and Hegel also insist that their metaphysics has nothing to do with the supernatural. Their conception of metaphysics is indeed profoundly naturalistic. They banish all occult forces and the supernatural from the universe, explaining everything in terms of natural laws".[93] Here, Hegel sounds just like Stephen Hawking. Beiser then arrives at the conclusion that the "highest being", which is at the heart of the metaphysical question and which Hegel calls "the absolute", is according to Hegel "the universe as the whole" and that this is simply equivalent to nature.[94]

But the question arises as to why, to Hegel, *spirit* should mean the highest degree of organization of the organic powers *within nature* and not, as he puts it, of the *Idee*, i.e. the 'form' or the 'type' of being. Beiser locates the knowing subject in the organic nature, and not in the world, i.e. the human world, or the world of thought. A theory of knowledge that

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[88] Beiser, 2002, p. 355.
[89] Beiser, 1993, p. 8.
[90] Beiser, 2002, p. 598, note 4. For a slightly different view from Beiser see Stone, A., "Hegel, Naturalism and the Philosophy of Nature", 2013.
[91] Cf. ibid., p. 2.
[92] Ibid., p. 5.
[93] Ibid., p. 2.
[94] Cf., Beiser, 1993, p. 8.

places the conscious being only ‘in’ nature performs a mystical animalization of consciousness. This constrained naturalization involves *ab initio* a vitalist indefensible assumption: it does not identify the noumenal element in the realm of pure thought or even in the intersubjective social realm, but only in naked animality. The imagined bearer of the obscure “powers within nature” becomes itself an indeterminate entity working somehow ‘in’ the things.

Hegel, for his part, criticizes in *Phenomenology of Spirit* in the chapter “Observing Reason” the mystical use of the category *Kraft* as a rather problematic metaphysical construction. Although it may seem so, the essence of “force” or “power” is something that is not a purely natural given. Hegel interprets the search for powers in nature, as well as the very assumption of such powers, as rather an activity of “reason” (*Vernunft*). The faculty of reason determines these powers according to its own conceptual schema and its own power of thought. Thus, neither does Hegel conceive of spirit as a product of nature in the narrow sense, i.e. nature as a mere part of the whole world, because nature as such, as the object of a natural subject, cannot go beyond the limits of itself. Spirit is infinite by definition, whereas nature is finite. Everything in nature exists in time and dies. Hegel refers to both spirit and nature as products of the *Idee*, which “posits” itself and “returns” to itself.

Furthermore, Hegel does not reduce spirit to only “powers within nature”, and this is because he believes that spirit is free in a way that nature is not. The belief that mistakenly takes the principle of spirit to be some kind of natural force is designated by him as *Naturreligion*. The “religions of nature” misidentify the divine as the natural, each time in

different ways.[95] Hegel's main point of critique in his analysis of the problem of "natural religion" is the following: as long as "natural religion" understands the spiritual only "immediately", i.e. without conceptually mediated thinking, it still does not acknowledge that the spiritual implies a self-aware subjectivity. Hence, it does not reach a true concept of freedom, only a pantheistic one. Given Hegel's own terms, Beiser's interpretation – and generally, the whole conception of naturalism about the mental – is more likely to correspond to the belief of *Naturreligion* than to Hegel's own thought.

Surprisingly, Beiser understands that Hegel himself criticizes Schelling's idea of the absolute as "excessive naturalism" that underestimates "the realm of spirit that consists in society, the state, and history".[96] The reason to insist on Hegel's naturalism is thus unclear. And indeed, Beiser later noticed the need to revise and moderate his view. He began to attack Hegel's scholarship for letting Hegel's thought "appear more respectable to contemporary analytic philosophy".[97] By this he means the general positivistic reading, but he could also mean, for example, Kenneth Westphal, who describes the key theses of Hegel's epistemology as "fallibilism, pragmatism and non-foundationalism".[98] Westphal's biased view is that Hegel's ideas are valuable only because they can be completely found in contemporary theory of knowledge. At some point, Beiser stopped speaking of Hegel's naturalism and began to criticize scholars for flattening

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[95] In *Lectures on the Philosophy of Religion*, in the section "A. Immediate Religion, or Nature Religion" (1988, pp. 209–223; 16/259–278). In order not to confuse the terms, Hegel stresses that the unreasonable "nature religion" should not be mixed up with Rousseau's or Kant's enlightened idea of intellectual *Vernunftreligion*, which was also called "natural religion".

[96] Beiser, 2002, pp. 9f.

[97] Ibid., p. 508.

[98] Westphal, 2003, p. 51. His reading will be presented in the next section.

Hegel's claims with non-hermeneutical methods.[99] He came to the remarkable conclusion that "the predominant concern of Anglophone scholarship on German idealism has been to emasculate, domesticate and sanitize it, to make it weak, safe and clean for home consumption".[100] The significance of his position consists in his self-critique and his upholding of the hermeneutic effort. He himself, however, has not provided the reader with hermeneutic investigation of Hegel's original texts. Although he recognizes the problem of the "non-metaphysical"[101] interpretation of Hegel as responsible for "dark days", he still does not associate it explicitly with the problem of attributing naturalism to Hegel.

2.4.1.2 The "biological needs" of self-consciousness (Westphal)

Westphal believes that "Hegel's naturalistic account of thought"[102] is to be found in his discussion on "desire" in the chapter "Self-Consciousness" in *Phenomenology of Spirit*. According to Westphal, Hegel claims that the condition for the existence of self-consciousness is a law-like natural structure because "any world in which we human beings can be self-conscious is one that has a natural structure unto itself that provides us with at least a minimum necessary degree of regularity and variety among the

[99] In "Dark Days: Anglophone Scholarship since the 1960s" (2007). Still, when he discusses again Hegel's non-mechanical view of the organic nature, he offers a rather Schellingian model, according to which "the mental realm is only the highest degree of organization and development of the organic powers of nature; the mental and physical differ only in degree rather than kind: the mental is the invisible form of the physical, the physical the visible form of the mental" (Ibid., p. 83). Schelling's idea of nature was indeed decisive for Hegel, but mostly to the extent that Hegel argues against it.
[100] Ibid., p. 70.
[101] This term was coined by Klaus Hartmann in his essay "Hegel: A Non-Metaphysical View" in *Hegel: A Collection of Critical Essays*, ed. A. MacIntyre (Garden City: Doubleday, 1972).
[102] Westphal, 1989, p. 160.

contents of our sensations".[103] It seems trivial to Westphal that "regularity" and "variety" are properties of the given nature. He does not consider them as logical categories of reason. He elaborates his thesis, claiming that:

> "Naturalist elements appear in Hegel's epistemology in his theses that biological needs (one root of consciousness) involve elementary classification of objects, that the contents of conscious awareness derive from a public world, and that classificatory thought presupposes natural structures in the world".[104]

Even though one may agree with the premise that self-consciousness classifies objects of desire in the public world, several objections to this argument as a whole arise.

To begin with, Hegel himself does not speak of "biological needs" (*biologische Bedürfnisse*), at least not in the context of self-consciousness. He speaks of *Begierde*, which means "desire", and which Westphal falsely translates as "need" (*Bedürfnis*). Desire is for Hegel not simply biological, but like volition, an intentional act of a self-conscious being. Even if it is true that Hegel refers to the desire of self-consciousness as directed towards objects of consumption, Westphal ignores the fact that Hegel clearly says that self-consciousness attains true satisfaction of its "desire" only by another self-conscious being, not just by a natural object.[105] Hegel argues that self-consciousness reaches its satisfaction by *Anerkennen*, the act of mutual "recognition", not by "classification",[106] the translation that Westphal seems to prefer for *Anerkennen*. To claim that consciousness

[103] Westphal, 2003, pp. 70f.
[104] Ibid., p. 52.
[105] Cf. Hegel, 1977, p. 110; 3/144.
[106] Cf. ibid., p. 112; 3/147.

consumes biological objects in order to physically exist in the living world is to show only one side of the coin, while hiding the other. The other side of this coin, which Hegel also highlights, if not even more strongly, is to claim that consciousness 'consumes' other kinds of objects, namely self-conscious beings. It belongs to the heart of the Hegelian idea of self-consciousness that it needs another self-consciousness in order to become truly self-conscious and so to reach its fully developed concept. Westphal seems to miss here the whole point. He insists on Hegel's "naturalism" only because he believes that to acknowledge any interaction between nature and consciousness already means to be a naturalist. Yet it is not clear why such a premise should be an adequate interpretation of Hegel's philosophical intentions.

In fact, the problem with Westphal's reading is that Westphal himself also confirms that self-consciousness ought not to be identified with a "biological organism"[107] and that "Hegel argues that our capacity for classificatory thought is not merely a natural phenomenon".[108] He acknowledges that Hegel's idea of absolute spirit corresponds to the "social whole" and the "human community".[109] But at the same time, he ignores the hard problem of Hegelian epistemology: the question of how to justify the intellectual possibility of an unconditioned point of view that enables true self-knowledge. In Westphal's view, spirit remains overall "within its natural setting"[110] and always presupposes a "natural environment".[111]

[107] Westphal, 1989, p. 161.
[108] Westphal, 2003, p. 63.
[109] Ibid.
[110] Ibid., p. 63.
[111] Ibid., p. 59.

Interestingly, Brandom introduced the same argument about Hegel's account of "desire" as the "source of classification"[112] in the animal realm, and he even calls it a "naturalized" version of the Kantian account. However, he emphasized that the crucial source of classification for consciousness is the "normative dimension"[113] of the inferential rules which constitute "discursiveness"[114] in the first place. To make this point clearer and not to sound too ambiguous about naturalism, Brandom would later drop the term "naturalized" in this context and justly claim that, although "cultural activities arise within the framework of a natural world" they "become explicit as such only by the use of normative vocabulary that is in principle not reducible to the vocabulary of the natural sciences".[115] In an acknowledging manner, he even clearly says that: "This is a picture and an aspiration that we owe to Hegel".[116]

Westphal's naturalist reading may seem to attain confirmation from the following sentence in Hegel's "Philosophy of Spirit": "From our point of view Mind has for its *presupposition* Nature".[117] For Hegel, however, it would be only a common-sense view to think that mind needs nature in order to be, and that hence nature is quasi more 'important' than mind and comes 'before' it. Only naive realism grasps nature as something totally different from the mind and totally independent of it. Hegel's theory of *Reflexion* at the beginning of the "Doctrine of Essence" maintains that the operative category of "presupposition" (*Voraussetzung*) does not articulate in any way that the "presupposed" (*Vorausgesetzte*) is a casual "reason" for that which presupposes it (*Voraussetzende*). On the contrary, for Hegel, the

[112] In Brandom's *Making It Explicit* (1994, p. 86).
[113] Ibid., p. 87.
[114] Ibid.
[115] In Brandom's *Articulating Reasons* (2000, p. 33).
[116] Ibid.
[117] Hegel, 2008, p. 6, § 381; 10/17.

presupposed is logically subordinate, an abstract essence whose content is less determined. In our case, this means concretely that nature is not the logical reason for spirit, but an entity less determined. Hegel's sentence, thus, does not come to express the primacy of nature over spirit, but the opposite: only for us, the cognitive individual subjects, it seems that nature is nothing but a given reality.

Furthermore, by examining Hegel's words closely, we find that in the original not only the word "*presupposition*" is italicized, but also the words "*nature*" and "*from our point of view*".[118] William Wallace has dropped from the translation that which makes the significant difference: the function of highlighting "*from our point of view*", which says in the original "*for us*" (*für uns*), is to indicate the state of mind that is still subjective and insufficient. Hegel stresses the supremacy of spirit over nature in the *Encyclopaedia Logic* when he claims that "nature is not just something fixed and complete on its own account, which could therefore subsist even without spirit; rather, it is only in spirit that nature attains to its goal and its truth".[119]

Westphal's final verdict on Hegel's "Psychology", namely that "Hegel's philosophical psychology is deeply naturalist",[120] is certainly consistent with his own naturalistic view; but it is perplexing because Hegel's "Psychology" is located in "Philosophy of Spirit", not "Philosophy of Nature", and it explicitly treats spirit as spirit, and not as "natural soul". The latter is conceived only as spirit's initial default "natural moment" which Hegel discusses in his "Anthropology", not "Psychology".

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[118] 10/17. Michael Inwood has revised Wallace's translation and improved it: "*For us* mind has *nature* as its *presupposition*" (2007, p. 9, § 381).
[119] Hegel, 1991, p. 153, § 96, Addition; 8/204.
[120] Westphal, 2003, p. 55.

Pinkard's reading stresses the same natural factor in the embodiment of the human knowing subject, yet with different arguments. In what follows I shall demonstrate Pinkard's reasons for reading Hegel's spirit through a naturalistic lens.

2.4.1.3 "Disenchanted" naturalism: natural freedom of natural mind (Pinkard)

Pinkard declares in Hegel's name that: "We are embodied agents, bound by the limits of our organic nature and always working within a particular, bounded social space".[121] If this were in fact Hegel's main thought regarding spirit or science, he could indeed have been considered as ascribing to a skeptical form of naturalism about the mental. Yet, Pinkard presents arguments in favor of Hegel's naturalism which are problematic. I will thus analyze them in the following.

(1) In a quite surprising manner, Pinkard explains Hegel's alleged view concerning the natural character of human consciousness with a *neuroscientific* anecdote:

> "The human agent, *by virtue of certain biological characteristics having to do with its brain and its nervous systems* (among other things), actualizes something that is already in play in animal life but that, as put to work in that way, becomes fundamentally different from it".[122]

The question arises, however, as to whether the text in italics is also claimed by Hegel. Even if one agrees with the assumption that human life,

[121] Pinkard, 2012, pp. 104f.
[122] Ibid., p. 48 (my italics).

grasped as spiritual life, is in Hegel "fundamentally different" from animal life, Pinkard's own explanation for the difference is essentially biological and based on the particularity of the human brain. The phrase "by virtue of" suggests a kind of causality that is rather in question. Pinkard locates the anthropological difference at the natural level instead of the cognitive level, although the capacity of thinking is for Hegel the most significant factor in the constitution of human self-consciousness. Pinkard *appears* to speak of animals *and* people, but in fact he only refers to the zoological characteristics of animals, believing that "Hegel holds that human agents, by virtue of thinking of themselves as animals, thereby become special animals, namely, self-interpreting ones".[123] Pinkard does not account for his own assimilationism dressed up as differentialism. In a contradictory manner, he actually endorses a view that relapses into naturalism à la Beiser: "Human subjectivity emerges as a kind of reflexive complication of this kind of organic, animal self-relation, not as something radically other than animal life".[124]

In this, Pinkard is not alone. A precedent was set by Willem DeVries who claimed that Hegel "saw man as arising out of and continuous with nature and capable of being understood only in this natural context".[125] But does Hegel really hold that man arises *only* in a natural context? In his "Preliminary Conception" of logic in the *Encyclopaedia*, we find the following thought: "Insofar as he is spirit, man is not a natural being".[126] Likewise, at the outset of the "Philosophy of Spirit" we learn that spirit: "does not emerge in a natural manner from nature. [...] this emergence is not in the flesh but spiritual, it is not to be understood as a natural

[123] Ibid., p. 18.
[124] Ibid., p. 30.
[125] DeVries, 1988 p. xii.
[126] Hegel, 1991, p. 63, § 24, Addition 3; 8/90.

emergence but as a development of the concept".[127] After the transition from nature to spirit, spirit does not remain natural in its essence, and what "comes back to itself" is not nature, but rather the *Idee* in the form of the spirit. Hegel explicitly argues that, at some point in the transition from nature to spirit, "nature has vanished" and is only *aufgehoben* in spirit.[128] In Pinkard's interpretation, Hegel's philosophy of spirit as a whole would seem to have evaporated.

Pinkard's epistemological naturalism corresponds to the assimilationist cognitive-ethologistic approach which we have explicated before. It misses a critical Hegelian argument in the *Phenomenology of Spirit*, according to which the intelligence of individuals is rather, as Stekeler articulates, an "effect of the collectively passed on general forms of human life".[129] Such tradition-making, i.e. passing-on-praxis, is not done by a single brain of an individual, no matter how developed, but by a "concepts-sharing community",[130] which is a universal transsubjective being. The evolution of the individual brains has a rather biological explanation: they evolve for the sake of species longevity.[131]

(2) To further prove that Hegel banishes all "nonnatural powers", Pinkard suggests that Hegel refutes a "dualist account of freedom as involving nonnatural powers"[132] by referring to Hegel's words on "law-like

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[127] Hegel, 2007, p. 15, § 381, *Zusatz*; 10/25.
[128] Ibid., p. 9, § 381; 10/17.
[129] Stekeler, 2014, p. 38: "*Effekt gemeinsam tradierter allgemeiner Formen menschlichen Lebens*".
[130] Ibid., p. 349: "*Begriffsgemeinschaft*"
[131] Cf. ibid., pp. 37f: "*Zentral und fundamental ist dabei Hegels Kritik an der bis heute üblichen 'empiristischen' und 'individualistischen' Auffassung, die Intelligenz des Einzelnen und die geistige Welt überhaupt würde einfach hervorgebracht durch das Verhalten und die Gehirne der einzelnen Menschen, wie sie sich im Laufe der Evolution nach den aus der Biologie bekannten Weisen zum Zweck des Überlebens der Gattung herausgebildet hatte*".
[132] Pinkard, 2012, p. 30.

freedom": "We have said that *freedom* is to be asserted as the basic essence of spirit, the freedom *from* and *in* the natural, which, however, must not be taken as arbitrary choice (*Willkür*) but rather as law-like freedom".[133] Although Hegel clearly argues that freedom from the natural belongs to the essence of spirit, Pinkard presumes that the idea of the law-likeness of freedom, just as the idea of law in general, belongs to the domain of nature and somehow "refutes" nonnatural elements. Hegel criticizes this view in the chapter "Observing Reason", where he argues that law (*Gesetz*) in general, hence also natural law, is a product of spirit's own act of "positing" (*Setzung*) in the sense of thinking about the various forms of being and formulating the relations between them. Insofar as the spirit "posits" the laws, it finds, validates and formulates them. "Legislation" (*Gesetzgebung*) is thus an act executed and altered by the spirit, not by nature. When the spirit looks for laws of nature and articulates them, it actually deals with itself and articulates something very fundamental about itself. The laws Hegel has in mind include social laws (norms), state laws (legislation) and divine laws (commands). They all stem from a free subject or a community of subjects, and they are all brought forth by the faculty of "reason". As such, they are grasped as a self-conscious process of collective self-determination. Therefore, contrary to the common sense view, Hegel does not hold that the concept of "law-like freedom" is a *contradictio in adjecto*.

(3) Pinkard also attempts to prove Hegel's naturalism by contraposition, arguing that Hegel is not a spiritualist, for he "does not hold that natural, material objects are (to use an admittedly slippery term) reducible in any

[133] Ibid., p. 43 note 62. This citation, translated by Pinkard, stems from *Vorlesungen über die Philosophie des Geistes: Berlin 1827/1828* (Hamburg: Meiner, 1994), p. 19.

kind of way to mental or spiritual objects".[134] Even if one agrees with Pinkard that Hegel is certainly not a mad *Jenseits*-spiritualist who imagines that all is spirit, objections to Pinkard's definition can be raised. Firstly, not everyone who is not a proper spiritualist is automatically a naturalist. To prove naturalism reliably, one should rather prove that all the mental or spiritual objects are effectively reducible to natural objects. One cannot only prove that the opposite does not occur. Secondly, and more significantly, in the chapter "Sensation" in "Anthropology", Hegel shows that just as the soul enacts the natural objects by "sensing" (*empfinden*) them, i.e. by making them into an intelligible part of itself, to an "ideality" within the soul, the soul also externalizes itself into the outer nature in order to become visible and so to be "found" (*gefunden*). Hegel interprets certain corporal phenomena as supervening on spirit's motions: the spirit embodies itself through mimic, gesture, blushing, laughing and crying, and in this way becomes perceptible for another sensing soul. In both cases, in the internalization and the externalization, the soul itself is the actualizing agent, not nature.

(4) Finally, Pinkard claims that Hegel is a naturalist because he acknowledges the existence of soul in animals, in contrast to what Pinkard regards as the anti-naturalist religions which purportedly deny soul in animals: "Hegel divides animals from people not on the religious ground that animals do not have souls – on Hegel's account, they do have souls – but on the ground that they cannot *think*, that is, cannot entertain reasons as reasons".[135] It is not clear, however, what exactly the "religious ground that animals do not have soul" is. Which religion does Pinkard mean? Branches of Christianity may differ over whether the soul of animals is immortal:

[134] Pinkard, 2012, p. 38, note 28.
[135] Ibid., p. 44 note 72.

Baptists doubt it, as does the Church of Christ, and some Catholics negate it.[136] But which religion in the world deprives animals of having a soul at all? Pinkard apparently relies on the "Preface to the Second Edition" of the *Encyclopaedia*, where Hegel deals with the issue. Hegel, however, claims: "It is *thinking* that first makes the soul – with which the lower animals are endowed too – into spirit; and philosophy is only a consciousness concerning [...] spirit [...] which distinguishes it from the lower animals, and makes it capable of religion".[137] Also in the second paragraph in the *Encyclopaedia* we read that one ought not to forget that, due to thinking, "only man is capable of religion, and that the lower animals have no religion".[138] In both cases, Hegel speaks of *Tier*, "beast", not "lower animals" – a translation which rather confirms the vague prejudice that man is animal, only a higher one, and the other animals are by their nature "lower animals". Pinkard's interpretation thereby conveys the impression that the attribute "naturalism" is used against religion in general, while it is not evident that Hegel would adopt this line of thought. What Hegel originally claims is not generally hostile to religion.

Out of the discourse of naturalism about the mental, there emerges a further reading that interprets the social-habitual consciousness as the naturalistic side of Hegel's collective spirit: the view of "social naturalism".

2.4.2 Social naturalism (Tesla)

Italo Testa stands in the recent tradition of naturalistic readings of Hegel as he convincingly refutes any "physicalist, reductionist or eliminativist"

[136] http://do-animals-have-souls.info/organised-religions.html
[137] Hegel, 1991, p. 12.
[138] Ibid., p. 25.

naturalism in Hegel's system,[139] while simultaneously establishing a naturalistic thesis about Hegel's "epistemological realism": "This thesis could be called *Hegel's naturalism*: the idea that there is one single reality – living reality – and different levels of description of it".[140] On the surface, this definition may sound plausible. However, Tesla argues that Hegel holds an "explicit" epistemological position, namely a "natural theory of mind",[141] that is expressed in the sentence: "Spirit, *for us*, has *Nature* as its *presupposition*".[142] Tesla's goal is to look for the sense in which this "natural theory of mind" can be correctly related to the "social space".[143] Based only on two appearances of the term "second nature" in paragraphs 4 and 151 in the *Elements of the Philosophy of Right*, Tesla identifies in Hegel what he labels "social naturalism", a form of McDowellian "second-natural naturalism".[144] He declares that social life in the form of the "social and institutional bodies" *is* the "second nature" of humans, because "the institutions of social life are extensions and objectifications of human nature and of individual mind".[145] Tesla, who does not dwell on the term "second nature", presupposes its meaning. Unlike Tesla, Aristotle, who introduces this term to philosophy in his *Nikomachean Ethics* and mentions it only once, does not understand by "second nature" the *sociality per se*, but rather *hexis*, a habit an individual has difficulty to alter. Even if one agrees that the social is indeed an objectification of the mind, it does not necessarily follow that it should be called "nature".

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[139] In "Hegel's naturalism or Soul and Body in the *Encyclopaedia*" (Tesla, 2013, p. 35).
[140] Ibid., pp. 23f.
[141] Ibid., p. 30.
[142] Ibid., p. 21.
[143] Ibid., p. 31.
[144] Ibid., p. 28. What follows is not a refutation of McDowell's "second-natural naturalism", but only the evidence given by Tesla for its existence in Hegel.
[145] Testa, 2013, p. 35.

Looking carefully at Hegel's words in the paragraphs which Tesla left without a commentary, we actually find that in both paragraphs Hegel says "*as* a second nature" (*als eine zweite Natur*), not "*is* a second nature".[146] This difference may appear to be hair-splitting, but the question arises as to what precisely Hegel compares with "second nature" and why. Consideration of the context in which this term appears is thus appropriate.

In paragraph 4, it is evident that the object of Hegel's analysis is the idea of "right" (*Recht*), not society. He clearly grounds this idea in the spiritual realm and in the free will, not in nature. His claim is that, by producing the realm of right, the spirit produces its own world which, while like a second nature in some respect, is actually not nature, but culture. Nature develops by itself, but culture requires effort and a process of learning. Hegel's conception here is set in an analogy with nature as that which is "produced" (*hervorgebracht*), as *natura naturata*, not *natura naturans*.

In paragraph 151, Hegel argues that the ethical habit, *das Sittliche*, only appears as a second nature if it is taken to be identical with what individuals simply do, how they are without the contrivance to change. Again, he does not define the ethical realm itself as natural in any sense. In fact, by this Hegel shows that he is aware of the Aristotelian origin of the concept of "second nature". Whereas Tesla uses the term "second nature" in quite a trivial manner and even literally, Hegel, like Aristotle, does not mean nature or even the social realm, but a property an individual cannot easily change. Furthermore, in paragraph 146 Hegel argues that the individual subjects believe that valid ethical laws possess even more authority than natural constraints. Here we find the analogy with nature as a mighty power which is experienced by the individual subject as if it were

[146] My emphasis.

ultimately independent and self-determined. For Hegel, to say that nature is really independent is wrong, because nature is conceptually formed in contrast to the independent spirit. This would be as wrong as saying that social realities must be considered as unalterable givens.

Tesla, who neither elaborates on McDowell's second-natural naturalism, nor refers to the Aristotelian origin, ignores that Hegel also deals with the question of "habit" as "second nature" from the perspective of the "Philosophy of Spirit", especially in the "Anthropology" in paragraphs 409–10. In these paragraphs, the mechanism of habit is viewed as one "moment" in the life of the "practicing" spirit, namely the self-feeling subjective spirit. But undoubtedly this is only one layer in the concept of spirit, namely the initial still-unconscious part. In this moment, the idea of spirit is intentionally treated in the immediate form, in which it appears to individuals, not to the "absolute spirit", and hence not as it is truly "in and for itself". Tesla would seem to be aware of Hegel's philosophy of spirit *as a whole* and hence of the problem of concentrating exclusively on parts of the subjective spirit, e.g. on the idea of second nature, when he says: "If the Hegelian philosophy of Spirit reflects such an approach – some form of methodological and ontological holism – then we cannot claim to have dealt with the mind-body question adequately if we have concentrated exclusively on subjective Spirit".[147] However, while fully reducing the Hegelian conception of the institutionalizing "objective spirit", let alone the sphere of "absolute spirit", to a programmatic naturalization of social habituation, Tesla does not draw the full consequences from his own correct restriction.

In order to illuminate further the question of Hegel's naturalism we should analyze his own words on nature. But before we do so, we shall turn

[147] Ibid., p. 16.

to one last critical voice concerning naturalism in Hegel which can shed light on his relation to naturalism – Husserl's criticism.

2.4.3 A note on Husserl's critique of Hegel

Husserl's transcendental phenomenology, as the science of "the essence of consciousness",[148] approached in the first person, was an explicit effort to deal with the accelerating spread of naturalism in logic and epistemology, a tendency that culminated in the still-dominant Quinean naturalism about cognition. Husserl thus shares a similar struggle with Hegel. However, Husserl himself has never interpreted Hegel's philosophy as a confrontation with naturalism. On the contrary, in his essay "Philosophy as Rigorous Science" (1910-11) he blames Hegel's "relativist" concept of science for causing the intensifying of naturalism, not directly, but by being the cause of the post-Hegelian historicism and hence the naturalist counter-reaction. In light of the fact that Husserl never deals with Hegel, it seems that Hegel's own reaction against naturalism is downsized by Husserl's reproach and becomes obscure. Let us reconsider the motives for Husserl's critique.

Principally, Husserl demands from philosophy what Hegel demands: to be scientific in the sense of being teachable and learnable. Husserl favors Kant's rigorous "critique of cognition", because it "makes the philosophical scientificity possible", but at the same time he criticizes Kant for rejecting the idea of the teachabilty and learnabilty of philosophy and for affirming the "unscientific character of philosophy". Husserl criticizes Hegel and the "romantic philosophy" for not having included in their systems the principles of "critique of cognition". He argues that, as a result

[148] Husserl, *Ideas I* (1913) § 34 (1983, p. 67).

of this dropping, Hegel's philosophy has led to two major intellectual crimes. Firstly, it led to the "falsification" of the impulse to constitute a "rigorous science", because Hegelianism caused the exact science to react with the intensification of *naturalism*, hence with *skepticism* too. Secondly, Hegelianism led to the "weakening" of this impulse in the form of historicism and relativism about philosophical epochs, which, even though these impulses are anti-naturalistic in themselves, still end up being "worldview philosophy". One cannot miss hearing Husserl's accusing tones towards Hegel's excessive anti-naturalism.

Against this background, Husserl asserts that besides the "radical critique" of naturalism – which he thought to be especially important at his times, and which is still relevant today – one needs a positive non-hostile critique of the foundations of naturalism and an appreciation of its circumspect scientific methods. In my discussion on naturalism, the line of the argument has attempted to take up this point and to continue with the spirit of the Husserlian project of naturalism-critique. In light of the confrontation with naturalism, it is astonishing that Husserl identifies such a powerful anti-naturalism in Hegel that could historically cause even more naturalism. I, on the contrary, would assess that Hegel is involved in a negotiation with naturalism, advocating non-naturalism as a milder stance in a fruitful dialogue with various forms of naturalism.

Husserl finds an advantage in naturalism, namely its desirable general target of implementing the idea of rigorous science everywhere. Yet, like Hegel, Husserl criticizes that the naturalist is nothing other than an unaware idealist who naturalizes the faculty of reason by means of empiricism and thereby also naturalizes the ethic, aesthetic, pedagogic and logic realms. Husserl claims, again like Hegel, that experimental psychology distorts the real foundations of all these "pure" disciplines. Therefore, modern empirical psychology poses two problems for Husserl which, as we have

seen, also mattered to Hegel: the "naturalization of consciousness" and the "naturalization of the ideas". Husserl makes clear that natural science itself cannot be epistemology, and as we have shown, Hegel implicitly claims the same thing, only with the necessary modification to his time.

The crux of the matter is that the very fact that Husserl wishes that epistemology would find a scientific-objective way to speak about experience and consciousness, which is the same aspiration Hegel had, is an expression of his skeptical belief that, until his time, epistemology in general, including Hegel's epistemology, had still not become "rigorous science". To a certain degree, this is still true for today.

2.5 Hegel's non-naturalistic concept of nature

After considering the various naturalistic readings, doubts arise about the actual content of the concept of nature which Hegel has in mind. We thus turn to the presentation of Hegel's concept of nature, especially at the outset of the "Philosophy of Nature" in paragraphs 245–52, in order to reconstruct the core issues and to show them as a possible response to the naturalistic attitude. The aim of this section is not to dwell on all the various ways Hegel uses the term "nature" in his writings, but on those which are relevant to the naturalism question and to the preliminary understanding of Hegel's non-naturalistic approach towards knowledge.

Before we begin with the particularities of Hegel's concept of nature, it is important to note that Hegel also uses the term "nature", unlike the typical naturalist, in the pre-Aristotelian meaning of 'essence' (*Wesen)* or 'quality' (*Beschaffenheit*), for example, when he mentions the "the nature of size",[149] "the nature of concept",[150] "the nature of the copula in the

[149] "*Natur der Größe*" (9/54).

judgment",[151] "the nature of force",[152] "the nature of the spirit"[153] or "the nature of the state".[154] Hegel even clearly notes that, by the expression "the nature of the thing", he also means the "concept" of it.[155] At the same time, he also shares the phenomenological meaning of nature as that which is sensually perceivable, as "pure externality". However, Hegel goes beyond these received meanings and refers to nature as an immediate manifestation of "*the Idea*", as that which seems to contain a riddle, but which is initial and common. These determinations will be analyzed in the following.

2.5.1 Nature as the idea

By defining nature as the idea in "the form of *otherness*", Hegel means that nature is the idea in the form of the non-idea. This seemingly paradoxical situation happens when the idea is "negative" to itself and so "outside" itself, i.e. "external". Since Hegel refers to nature as that which is sensually detectable, his description may not initially seem to be alien to the naturalistic conception. The difficulty is that Hegel speaks of nature as an abstract thought or a mere idea, and, at the same time, as a given "immediacy", as an extra-cognitive being. By this, he is aware of the question of nature's indeterminacy and integrates into his definition the common-sense understanding of nature as something outside of us which seems to behave independently of our cognition. The common view takes nature as the whole of matter, a plenitude of atoms or molecules or an

[150] "*Natur des Begriffes*" (9/212).
[151] "*Natur der Kopula im Urteil*" (8/371).
[152] "*Natur der Kraft*" (8/270).
[153] "*Natur des Geistes*" (7/504, 7/344).
[154] "*Natur des Staates*"(7/417).
[155] "*Natur der Sache, d. i. den* Begriff" (8/156, 10/31).

infinite amount of things yet to be discovered. Therefore, it was even argued that Hegel's conception of nature is "thoroughly non-idealistic".[156]

Hegel's use of the term *Idee* as a systematic metacategory is not easy to understand in the context of nature. His fundamental claim is not that nature is the non-idea per se, but rather that nature "*hat sich als die Idee ergeben*" and it is now an objective existence of nothing less than "*die Idee*", hence a given that is in effect a posited given. The reason for this formation is that nature, like spirit, functions in Hegel's organization of the sciences as one of the two basic categories of the real. In this way, Hegel systematically grounds the "ideational" (*ideell*) – not "ideal" (*ideal)* – structure of the sensually perceived and conceptually explained nature. In order to better understand Hegel's concept of the *Idee*, as a form of being, one should be reminded not to envisage *Idee* as *Vorstellung*, the picturing power of imagination that creates a representation of a particular object running through my mind, nor as *bloß Gedachtes*, a thought devoid of content, without reference to the 'real' in the sense of *wirklich*, that which has an actual effect on reality. Instead, the idea is for Hegel, perhaps unlike in Plato, the most "concrete" working being: "the *adequate concept*, the objectively *true*, or the *true as such*".[157] Yet, the "idea" is not world-transcending or ineffable. The questions arise as to which idea is the idea in the correct form of the idea, and as to why Hegel stresses that nature is the idea, *albeit* in the form of the non-idea.

In Hegel's explication of his concept of nature, he anticipates his concept of spirit by articulating a nondualistic, yet lapidary, distinction between the systematic status of finite nature and infinite spirit: the shape of the idea of nature is different from the shape of the idea of spirit insofar

[156] In "The Very Idea of the Idea of Nature, or Why Hegel Is Not an Idealist?" (Marker, 1998, p. 10).
[157] Hegel, 2010, p. 670; 6/462.

as nature does not hold in itself its own *Begriff*, does not hold the concept of itself as a concretization of *Idee*, as a form of being. The natural does not know that it is an idea, for it is not conscious of any self, and hence is not conscious of itself. This implies that the natural cannot be said to be really conscious. It does not know, for if it had known, it would have known that it knew. Since for Hegel, contrary to the empiricist-ethologistic approach in the philosophy of knowledge, true consciousness is also conscious of itself as its own self, he negates knowledge (*Wissen*) in animals, but not cognition (*Kennen*). He hereby echoes Aristotle's conception of *physis* which he interprets as an instinctive unconscious agency: "But because the urge [*Trieb*] is not a known *end*, the animal still does not know its ends as ends, and that that which unconsciously acts in accordance with ends Aristotle calls φύσις".[158]

The naturalist-vitalist view commonly opposes Hegel's formulation of the primacy of spirit over nature, i.e. of self-consciousness over unconsciousness, claiming that nature produces the most precious good: life. Yet Hegel, who does not work on an anti-nature plea, would also agree that one of nature's highest goods is life, however, he uses the term "life" in a broader sense, namely also as a logical category, not only as a mere natural phenomenon. He determines the spirit and its products, e.g. science or works of art, as even livelier than the natural life, containing "a higher kind of life [...] than the natural form".[159] It is clear to him that spirit is the "the truth and final goal of Nature and the genuine actuality of the Idea".[160]

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[158] Hegel, 1970, p. 389, § 360, *Zusatz* (my brackets); 9/473.

[159] Ibid., p. 18, § 248; 9/28f. Hegel writes: "*eine höhere Lebendigkeit* [...] *als die* natürliche Form". By "*Lebendigkeit*" Hegel means the liveliness of the 'self-moving' categories of thought. Allen and Unwin translate somewhat misleadingly: "a higher animation [...] superior to natural form" (1970a, p. 209).

[160] Hegel, 1970, p. 24, § 251; 9/36.

Using *die Idee* as a *medius terminus* to bring together the categories of *nature* and *spirit* is admittedly perplexing, and the question of monism-dualism arises unavoidably. Hegel's response to the naturalistic worry about the dualistic dichotomy between nature and spirit is that they are both realizations of the same self-identical idea. The crucial point is that the transition of nature to spirit is "not a transition to an out-and-out Other, but is only a coming-to-itself of the mind that is outside itself in nature".[161] Both spirit and nature have their place in the one system of thought. Hegel's dialectic strategy is neither monistic nor dualistic, but rather shows that all phenomena of the real, both natural and spiritual, are stepwise and immanently connected with each other as well as with the "the idea". The systematic categorical transition from nature to spirit is analogous to the transition from "life" to "recognition", within the last part of the logic, "the idea".

The structure of the interrelation between nature and spirit aims at a conceptual "unity" (*Einheit*) in the sense of an inseparable entirety, the mode of being-one-with-each-other and at the same time being-one-with-itself. While such "oneness" does mean being somehow aggregated together, it does not assume in advance the absolute state of being-one-and-the-same like the naive monism of nature on the one hand, or the *Geistmetaphysik* on the other. The Hegelian categories "nature" and "spirit" are generic names for two manifestations within one unity. From its nature, naturalism also aspires to achieve such unity, but due to its totality-claim it is constantly in danger of failing to name the nonnatural ingredient in the unity it seeks. The naturalistic approach neglects to acknowledge the manifestation of a being that is situated beyond or before nature and

[161] Hegel, 2007, p. 15, § 381, *Zusatz*; 10/25.

therefore capable of grasping nature as a whole, namely *Geist*, the self-thinking *nous*.

The interrelation between nature and spirit has a teleological meaning: "Spirit, just because it is the goal of Nature, is prior to it".[162] One has to think of this relation in logical terms, not chronological: since spirit is nature's "end", i.e. its "final purpose" (*Endzweck*), it can be set by the same token as the initial reason for nature's being. Hegel's radical position is that spirit has ontological priority over nature because spirit "posits" nature, i.e. spirit is that which "thinks" nature and relates to it conceptually. In Hegel's system, both the organic nature and the idea of spirit exemplify paradigms of the infinite teleology, and hence of the *Idee*, in contrast to the finite teleology of mere objectivity. In contrast to the domesticating reading of Hegel, which admits only the convenient epistemological priority of spirit over nature,[163] Hegel's insight in the *Science of Logic* is rather that spirit is both *ratio cognoscendi* and *ratio essendi* of nature, for nature is not just an immediate given. The ontological priority of the spirit is not expressed in terms of "pure being" or "abstract essence", but of the "concept". Precisely for this reason, Hegel argues that the "substance" should be also construed as "subject". The naturalistic approach conceals spirit's dialectical relationship with nature, as it takes spirit to be dependent on nature and thus needy. Contrary to ontological naturalism, Hegel takes nature to be only finite realization of the idea, not the whole one.

To come closer to Hegel's critique of naturalism, we can observe the truth progress in the sentence 'idealism is an idea', compared with that of 'materialism is matter'. The latter is evidently wrong, insofar as materialism is an idea too, just unaware of itself as such. While attempting

[162] Hegel, 1970, p. 444, § 376 *Addition*; 9/538.
[163] Cf. Papazoglou, 2012, p. 33.

to think that 'all is matter', the thinkers misunderstand themselves. Likewise, naturalism, under its own premises, does not indicate something natural, as it is neither a purely natural object, nor the object of natural scientific inquiry, but an idea unaware of itself as idea. This misological condition of not being self-aware is exactly what doxastic naturalism demands. Yet, only the spirit can be a real naturalist, while nature itself cannot be a naturalist at all.

2.5.2 The natural as the initial and the common

In his epistemology, Hegel uses the predicate "natural" in the meaning of initial, given, default, trivial, that which is first and foremost taken to be true. In this sense, he speaks of truth-skepticism as a "natural assumption" (*natürliche Vorstellung*),[164] as a *doxa,* a belief made and held by a "natural consciousness" (*natürliches Bewusstsein*). The latter just begins its scientific education, its philosophical *Bildung*. This is why it was interpreted by Hyppolite as a "*conscience commune*"[165] and by Taylor as an "ordinary consciousness of things".[166] In Hegel's thought, naturalism itself would count as a natural thought, a common stance.

The problem of this common consciousness is that as long as it conceives itself as natural and not as appertaining to the faculty of intelligence, it cannot go beyond itself and become knowledge, because:

> "Whatever is confined within the limits of natural life cannot by its own efforts go beyond its immediate existence; but it is driven beyond it by

[164] So translates Miller (Hegel, 1977, p. 48). Baillie translates: "It is natural to suppose that" (Hegel, 2003, p. 44).
[165] Hyppolite, 1946, p. 19.
[166] Taylor, 1975, p. 128. In the *Zusätze* in the *Encyclopaedia* we also encounter "*das gewöhnliche Bewusstsein*" (8/174, 9/18, 10/16).

> something else, and this uprooting entails its death. Consciousness, however, is explicitly the *Notion* of itself. Hence it is something that goes beyond limits, and since these limits are its own, it is something that goes beyond itself."[167]

The natural embodiment itself is thus not necessarily a limitation of knowledge per se, but only of immortal existence. Hegel's ontological concept of consciousness, namely of consciousness as *Bewusst-sein*, as a form of being, does not reduce consciousness to a natural body. Hegel does not limit the concept of consciousness to the immediate spatiotemporal *Da* of a certain *Da-sein*. Just as death is, in nature, logically continuous with life, in knowing, in a somewhat opposite manner, the self-conscious notionfull spirit is continuous with the unconscious notionless nature. The natural being is the initial moment of the spirit to be surpassed by the spirit itself. Because of its anticipated death, it is natural to the natural consciousness, the *Naturgeist*, not to want to go through the process of becoming "absolute spirit" or "pure knowledge". Hegel's "science of the experience of consciousness", his *Phenomenology of Spirit*, is designed to assist with this task of sublating what he identifies and combats as the anti-scientific skeptical sticking to the "natural beliefs". In the act of thinking, the natural, so construed, is *das Aufzuhebende* par excellence, and therefore, in philosophy, the concept of nature is susceptible to a constant problematization.

[167] Hegel, 1977, p. 51; 3/74.

2.5.3 Nature as a riddle

The problem of grasping the essence of nature continues to provoke our thinking again and again. Hegel expresses this problem in an original way insofar as he describes nature as "the unresolved contradiction" (*der unaufglöste Widerspruch*).[168] The contradiction in nature is between the concept of nature, i.e. nature made into an object of knowledge or a 'dead process', and the being of nature, i.e. the workings of nature in the world. As we have shown, Hegel explicates the concept of nature as the idea being outside itself, as externality. This concept, which is our form of presenting nature as 'dead', 'mechanical' and merely 'relational', takes nature to be a mere object of knowledge constructed by the mind. This concept of nature stands in contrast to nature's performative being. The performance of nature in space and time means its real organic existence and non-mechanical life. Hegel points out that, by virtue of this contradictory logical structure of nature, spirit does not "find itself" in nature, is not at home in it, and only *ahnt sich* there, only has some "vague clue" of itself in it. In other words, spirit has only "the remotest idea" of how it is to be nature, and so nature becomes a "riddle" to spirit. This quandary, which ought not to be misinterpreted as mystifying nature, sees in nature a hard nut to crack and a worthwhile object of inquiry.

The way Hegel addresses the riddle of nature brings to mind *mutatis mutandis* the Augustinian topos of the *liber naturae*, "the book of nature". This topos was created in order to make the difficulty of understanding nature palpable. The figure of "the book of nature" embodies the idea of revealing nature's laws in nature itself, in analogy to the reading of the divine laws in the *liber scripturae*, "the book of scripture". However, for Augustine, nature is the second book god wrote for the uneducated poor

[168] Hegel, 1970, p. 17, § 248; 9/28

man, the *idiota*, in order to understand the divine doctrines more easily, namely with his eyes.[169] In a kind of reply to Augustine, Galileo Galilei thought that the book of nature can become readable and comprehensible only for the mathematician, i.e. only if one understands its mathematical language with its geometrical "letters" of circles, triangles etc.[170] From the other pole, Charles Baudelaire thought that the poet is the one who better understands the "vague words" of nature, as for him: "Nature is a temple in which living pillars sometimes give voice to confused words".[171] These two modern examples of passionate study of nature, the mathematical-geometrical and the romantic-poetic, respectively represent a radical purist form of an exclusive absolute claim to understand nature. They both stand in contrast to Hegel's picture of nature insofar as Hegel acknowledges that the attempt to comprehend the unconscious nature in its transition to consciousness, even if one carries out a strict conceptual analysis and even if one successfully contests and undermines naturalism, remains a lasting challenge in a true philosophical manner. The scientist and the poet, each in their own way, tell us their truth about nature while promising exclusivity. The thinker, in contrast, prefers to pose the questions and stress the possible difficulties and deficiencies in the common-sense forms of understanding.

Due to the unintelligible nature of nature, nature remains ungraspable without the *Geist*. To better illustrate this riddle of nature, Hegel quotes Johann Georg Hamann, who compares nature with an unvocalized

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[169] Cf. Augustine, 1956, p. 522: "May the sacred page be a book for you, so that you may hear; may the globe of the earth be a book for you, so that you may see; in these books only [Scripture], those who know letters read these things; in the whole world, even the fool can read".

[170] Cf. Evernden, 1992, p. 52.

[171] Baudelaire, 1999, p. 55: "*La Nature est un temple où de vivants piliers laissent parfois sortir de confuses paroles*".

"Hebrew word",[172] which cannot be correctly read without the help of the vocalizing *Verstand*. Hegel's ambivalent 'oceanic feeling' towards the question of nature is also conveyed by the following words in a more precise manner:

> "What is Nature? [...] Nature confronts us as a riddle and a problem, whose solution both attracts us and repels us: attracts us, because Spirit is presaged in Nature; repels us, because Nature seems an alien existence, in which Spirit does not find itself. That is why Aristotle said that philosophy started from wonder. We start to perceive, we collect facts about the manifold formations and laws of Nature; this procedure, on its own account, runs on into endless detail in all directions, and just because no end can be perceived in it, this method does not satisfy us [...] What is Nature? It remains a problem".[173]

Recognizing the enduring philosophical problem of nature as open-ended, or even irresolvable, led Hegel to conceive the framework of his *Naturphilosophie* not simply as a positivistic attempt to ultimately answer the last great questions of nature, but as a logically structured tactic to follow the meaning of the ontological question of why there is nature at all. Hegel paints this question with cosmotheological colors: why did god produce nature, if god is the almighty unneedy? Why did the divinity create a non-divine being as nature or less divine than itself?[174] Hegel's response to this quandary is to negate the idea that god is "far from the world". Instead, he suggests an epistemological model that would show that god "has two revelations, as nature and as spirit". Since the logic of the human

[172] 9/19.
[173] Hegel, 1970, p. 3; 9/11.
[174] Cf. 9/23.

spirit is to recognize itself through what it is *not* in the world, nature and spirit compose the world as a whole and hold it together. To the relief of naturalists, Hegel clearly rejects the deification of nature, although he mentions that nature contains something divine. Finally, he rejects, as mentioned before, that the natural has priority over other works of god, namely humans and their works.[175]

2.6 In between conclusions

This chapter has attempted to show that Hegel can be read as offering an ongoing dialogue with divergent streams of naturalism. Since this is a multifaceted dialogue, we had to focus only on the relevant aspects of it. We have seen that, although Hegel has shown interest in natural study, his thought is in and for itself not naturalistic, because his ideas about nature and spirit are not fully consistent with the above presented forms of naturalism. We concentrated only on the forms of naturalism relevant for our question concerning the character of Hegelian philosophy of science.

The conclusion is that the tendency to ascribe naturalism to Hegel is more than just a local phenomenon of contemporary Anglophone scholarship insofar as it mirrors a questionable state of the art at the intersection between philosophy of science and philosophy of mind. The naturalistic reading interprets the natural world as a necessary presupposition for satisfying the needs of a self-conscious mind. At the same time, by using the etiquette “naturalistic”, it downsizes the reciprocal intersubjective dimension of recognition needed for the being of self-consciousness. Restating a quasi-Kantian perspective, it emphasizes instead the natural embodiment of the individual mind as a form of limitation to the

[175] Cf. 9/27f.

knowing subject. Its hypothesis is that the finitude of the human cognitive capacity is allegedly caused by the very natural character of the embodied knowing subject. However, unlike the naturalistic claims, Hegel's effort in the *Phenomenology of Spirit* is to show that the Kantian *Erkenntniskritik*, and any other naturalized epistemology, is in its turn criticizable and objectionable. Positively put, the naturalistic reading of Hegel succeeds in identifying and exposing a particularly crucial interconnection between Hegel's conception of spirit and his general theory of knowledge. For at the heart of the "non-metaphysical" reading is, after all, the endeavor to purify Hegel's name from being scientifically untenable. The various naturalistic interpretations embody a justified philosophical challenge, namely the lasting attempt to read spirit in its unity with nature. At this point, it is worth noting that the critique of the non-metaphysical reading must not necessarily lead to the confirmation of hermeticism and gnosticism in Hegel.[176]

The question of naturalism has its value in that it leads to the question about being as a whole, and hence nature too. The question of nature itself is implied in the question of naturalism, and it leads us, in its turn, to the question of that which is not nature, of nature's end: the intentional. This *Geistige* is that which demands to be known by itself. As long as spirit looks for itself in nature alone, and not in itself, it is not for itself *de facto*. The non-naturalistic concept of spirit underlies the normative-ontological space of ethical principles and plays an epistemic role in logically justifying it. In particular, it underlies and justifies the ethical principle of environmental responsibility towards nature.

The only way to correct naturalism's 'own goal' is to score another goal, beginning with gradually directing the intellectual sight from the

[176] As Glenn Magee's argues in his *Hegel and the Hermetic Tradition* (2001)

natural to its other horizon. One of Hegel's ways of doing this is to deliver a dialectical-phenomenological critique of pseudoscience in which he warns about the danger of taking naturalism about the mental literally. The next section addresses the way Hegel understands the problem of naturalism about the mental.

2.7 What is not science? Transition to Hegel's non-naturalistic concept of science through his critique of physiognomy and phrenology

In the search for spirit as the general knowing subject, or as the subject of possible knowledge, one can fall into a serious materialistic trap about which Hegel warns in his critique of physiognomy and phrenology. The unmasking of this trap can be helpful in approaching Hegel's theory of science. Although there is no doubt that physiognomy and phrenology are considered nowadays as obsolete pseudoscience to the extent that it seems useless to repeat Hegel's objections, his critique aims at a certain systematic thought that can help us with a pre-understanding of his concept of science. I will now reconstruct his pertinent claims.

Hegel argues that the main problem of physiognomy and phrenology as sciences is that they aim at understanding certain features of the spirit, namely human deeds and the moral character of persons, whereas in fact these pseudosciences look for traces of the spirit in the most opposite form of the spirit, namely the immediate natural form: the static bones and the arbitrary physical properties. They do not even try to look for the spirit in emotional embodiments like crying and laughing, the *Verleiblichungen*, which would perhaps be more expected. Therefore, physiognomy and phrenology only *seem* to be a rational result of "observing reason", whereas in effect all they do, says Hegel ironically, is grasp reason unreasonably:

"*Die Vernunft* [...] *ist* [...] *unvernünftig aufgefasst*".[177] In contrast to other branches of philosophy of spirit, like psychology and anthropology, physiognomy and phrenology misconceive the true essence of the mental because of their self-subordination to the natural sciences – and this is due to a category mistake. Hegel points out that, in the end, their method does not lead to anything scientific because they do not recognize the nonnatural overindividual nature of the mental, or as Michael Quante put it, the "social-externalist character of the mental".[178] To look for the knowing subject does not mean to look for a certain biological organ.

This thought is also relevant for the critique of naturalism in the brain science. Hegel himself argues that even when we see the "brain fibres" we do not grasp the "being of the spirit", because if we see them they are separated from the whole of the body, dead on the operating table, and so not the true being of the spirit anymore.[179] Hegel's warning may look superfluous in our day because today we have imaging techniques such as x-ray computed tomography (CT) and magnetic resonance imaging (MRI) that can make the brain visible by simulating the different functions of the brain areas without cutting it. Therefore, Hegel appears to be wrong in claiming that observing brain fibres already means looking at them when they are cut out from the living body. To be sure, in Hegel's time, to look at the brain areas was literarily to look at "dead objects" (*tote Gegenstände*), but his critical point, however, is still applicable because the MRI brain simulations are themselves still not the living knower as a whole that can see and speak. The brain maps are themselves still dead objects that need interpretation. The language of neuroscience, if it is to be self-aware, ought

[177] 3/262.
[178] Quante, 2010, p. 54. However, since Quante refers to this problem as "scientism", he unintentionally gives the empirical natural sciences the priority among the sciences.
[179] 3/261.

not to mistake the biological brain organ, be it dead or alive, for self-consciousness itself. The same logical pitfall that appears in the language of naturalist epistemologists also appears in the language of naturalist neuroscientists when they confuse the biological organ of brain with consciousness as a whole. Maxwell Bennett and Peter Hacker have already pointed this out, naming it the "mereological fallacy".[180] The most important thing to remember in this context is the insight that consciousness may have a natural aspect, but the being of consciousness itself, per definition, is not physical, for consciousness is not a "natural kind".

[180] Cf. Bennett and Hacker, 2003, pp. 68–74.

3. Approaching Hegel's concept of science

After dwelling on the deficiencies of the naturalistic readings, we now approach Hegel's concept on science by examining his words on the issue. We will begin our investigation with what is *not* science for Hegel by eliminating three exemplary answers rejected by him as well as presenting his critique of the Kantian notion of science. We will then inquire into the concepts *Geist* and *Wissenschaft*, their translations, and how the different renderings affect the comprehension of Hegel's concept of science. Since the whole project of the *Phenomenology of Spirit*, which is the declared "deduction of the concept of science", aims at breaking through to the general level of the concept of science as the proper "standpoint of science", investigations of the "Preface" and "Introduction" to the *Phenomenology of Spirit*, but also the *Encyclopaedia*, will help to bring us closer to an understanding of the main features of his conception, including the problem of beginning in science and his view on realism. Finally, we will suggest that Hegel's concept is a possible response to Thomas Kuhn.

3.1 What science is not

3.1.1 Science is not knowledge by acquaintance: the case of anatomy

To illustrate what science is, right at the beginning of the "Preface" to the *Phenomenology of Spirit*, Hegel gives a negative example of science, a science that "has no right to bear the name of Science"[1] – anatomy. This initial move may be surprising, since it goes without saying that anatomy is

[1] Hegel, 1977, p. 1; 3/11. Miller translates *Wissenschaft* as "Science" with upper case. In 3.3.1 we will discuss this issue in more detail.

of course considered a science or a scientific study, namely a branch of biology, nowadays[2] just as it was in Hegel's day.[3] Interestingly, in the 1858 standard work, *Gray's Anatomy*, anatomy is not taken to be a science; instead, in accord with Hegel, it is taken to be a descriptive "consideration of the various structures which make up the human organism".[4] Why does Hegel wish to take the title of 'science' away from anatomy? Why 'de-scientify' anatomy? Hegel defines anatomy as the "*Kenntnis*" of the "parts of the body regarded as inanimate",[5] as a mere "*Aggregat von Kenntnissen*". In this, he actually identifies three problems in the definition of anatomy that prevent it from being considered a proper science.

The first problem is that anatomy is a *Kenntnis*. The problem of correctly translating the idea of *Kenntnis*, which is derived from *kennen*, into English is well-known: both *kennen* and *wissen* are commonly translated as "to know". As John Dewey put it, *kennen*, just like γνωναι, *noscere* and *connaître*, indicates the "direct, prompt, immediate" mode of understanding, in contrast to *wissen*, which, just like εἰδέναι, *scire* and *savoir*, indicates the indirect, "roundabout and delayed" mode of understanding, the "circuitous apprehension" of meaning.[6] Dewey took these distinctions from William James' *The Principles of Psychology*[7], who in turn took them from John Grote's *Exploratio Philosophica*: *Rough Notes on Modern Intellectual Science*.[8] Dewey's explanation was that the

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[2] Cf. Leslie Aeillo's and Christopher Dean's *An Introduction to Human Evolutionary Anatomy*, 2002, p. 1: "Anatomy is the science of the structure of animals".
[3] Cf. Christian Gottlieb Selle's *Einleitung in das Studium der Natur- und Arzneiwissenschaft*, 1777, p. 57: "*Die Anatomie ist die Wissenschaft von* dem Bau des menschlichen Körpers".
[4] Gray, 1918, p. 1.
[5] Ibid.
[6] Dewey, 1997, p. 119. In *How We Think*, first published: 1910.
[7] James, 2007, vol. 1, p. 221. First published: 1890.
[8] Grote, 1865, p. 60.

equivalents of *kennen* and *wissen* could respectively be "to be *acquainted with* and to *know of or about*".[9] It is plausible to translate *kennen* as "to be acquainted with", but to be exact, *wissen* simply means "to know", as in "to know that", and not only "to know of or about". In fact, it is *kennen* that means "to know of or about" in the sense of *having-heard-the-name-of*. Like the French *connaissance*, it indicates a relatively lower degree of familiarity with an object, or, as Grote put it, "knowledge of acquaintance",[10] which Russell later reformulated as "knowledge by acquaintance".[11] For that reason, Dewey's own pragmatic suggestion to translate *kennen* as "to know" and *wissen* as "to know that"[12] is not satisfying and leaves the question of the semantic difference unanswered. Employing the German language further, one can say that such *Kennenlernen* (getting to know) that ends up only in *Bekanntschaft* (acquaintance or familiarity) is certainly not enough for the knowledge of *Wissenschaft* (science). To render *Kenntnis* in the case of Hegel's critique of anatomy simply as "knowledge", as Baillie and Miller do, is therefore highly problematic. In Miller, anatomy is the "knowledge of the parts of the body regarded as inanimate"[13] and in Baillie "the knowledge of the parts of the body regarded as lifeless".[14] In this way, the meaning of *Kenntnis* is not sufficiently differentiated from the category of *Wissen*, so

[9] Dewey, 1997, p. 119.
[10] Grote, 1865, pp. 62, 121, 123, 148. Grote also calls this "phenomenal knowledge" (Ibid., pp. 2, 3, 14, 87, 142).
[11] The idea of knowledge as "acquaintance" that regards the phenomenal reality appears in Russell's essay "On Denoting", in *Mind*, 1905. The idea of "knowledge by acquaintance" is explicitly discussed in his "Knowledge by Acquaintance and Knowledge by Description", *Proceedings of the Aristotelian Society*, 1910–1911, reprinted in his: *Mysticism and Logic* (London: George Allen and Unwin Ltd, 1917, reprinted: Totowa, New Jersey: Barnes and Noble Books, 1951) pp. 152–167.
[12] Dewey, 1997, p. 119.
[13] Hegel, 1977, p. 1 (Miller).
[14] Hegel, 2003, p. 1 (Baillie).

that one risks misunderstanding Hegel's epistemological distinction right at the beginning of his work.

Hegel argues that anatomy, defined only as a set of *Kenntnisse,* is not *Wissenschaft* because it is not based on a real discursive process of knowledge by theory-laden concepts. *Kenntnis* contains only descriptive knowledge of empirically given facts, as in taxonomy or mere *Fachwissen*, without dispositions, process or prediction. It possesses thus only the declarative form of a propositional that-clause, i.e. knowledge-that or *Seinswissen*, to know that something "is", or that "there is" something. To have *Kenntniss* of something does not necessarily mean to have a deep understanding of the essence of something as a whole or to have knowledge of the reasons or grounding of something. Miller comes closer to this understanding, insofar as he translates the words *Aggregat von Kenntnissen* as "aggregate of information".[15] The negation of the epistemic content of *kennen* becomes solid in the well-known passage: "*Das Bekannte überhaupt ist darum, weil es* bekannt *ist, nicht* erkannt".[16] From the above said, it is clear that there are problems with understanding the translation of this sentence as well. Miller translates: "Quite generally, the familiar, just because it is familiar, is not cognitively understood",[17] without the original italics and without the concept of knowledge. Baillie rightly distinguishes between "properly known" and merely "familiarly known", as he translates: "What is 'familiarly known' is not properly known, just for the reason that it is 'familiar'".[18] In Hegelian terms, we can say that this passage itself is not necessarily well understood just because it became very famous. If 'well-known' means famous, that which is famous

[15] Hegel, 1977, p. 1. Baillie chooses "a collection of items of knowledge" (2003, p. 1).
[16] 3/35.
[17] Hegel, 1977, p. 18 (Miller).
[18] Hegel, 2003, p. 17 (Baillie).

is not at once also very *well* known. In English one need say, the well-known is not necessarily well enough known.

Hegel, however, does not seem to stick to his identification of *kennen* as lower than *erkennen*, when he describes how the soul becomes spirit. He says there that through its full self-experience the soul comes to "*Kenntnis*" of what it is truly in itself, where one would expect *Erkenntnis*, as in the imperative *erkenne dich selbst*. But also in this context, Hegel uses *Kenntnis* as the direct phenomenal knowledge attained through experience, only that this time it is the experience that consciousness gains by dealing with concepts.

To be sure, it is a bit difficult to understand the epistemological problem of anatomy through the weakness of the term *Kenntnis* alone, as only knowing-of, since Hegel's problem with anatomy is epitomized, not only in the term *Kenntnins*, but also, and perhaps even more, in the term *Aggregat*.[19] Thus, we have to reconsider the second and more comprehensible problem of the mere "aggregation" of knowledge.

Being an *Aggregat* means being a collection or an assembly, and not necessarily a logically organized system or theory. Hegel uses the term "aggregate" in the negative meaning of a mere conjunction, an arbitrary combination which lacks the necessary coherent structure that scientific knowledge requires, namely a conceptual framework. This Hegelian use of the term has precedents. Kant claims that the *Vernunft* organizes the *Verstandeserkenntnisse* into one unity with the help of principles and according to one idea, so that they compose a law-like system, and not "an arbitrary aggregate".[20] Kant adopted this pejorative tone from Leibniz, who introduced the term "aggregate" to philosophy by describing the monad as

[19] 3/72.
[20] Kant, *Critique of Pure Reason*, B 673.

the true *substantia simplex*, in contrast to Democritus' atom which he regarded as a mere *substantia composita* reached by *aggregatum*.[21] Hegel, who stands in this tradition, refers to "aggregate" in the *Encyclopaedia* as an unsatisfying "arbitrary and empirical way" of gathering knowledge, which leads to the superficial form of common encyclopedias of sciences, in contrast to truly philosophical systematic encyclopedias.[22] A precedence with a similar attitude towards encyclopedias, which Hegel may have known of, is Sebasitán Izquierdo who claims that true encyclopedic science, designated by him, still before Fichte, as "*scientia de scientia*", is "*non in aggregato omnium scientiarum*", in his *Pharus Scientiarum* (1659).[23]

The third and perhaps less lucid problem which Hegel detects in anatomy, and which prevents it from being an epitome of science, is the fact that in anatomy we are informed about a dead body. But how does the lack of aliveness remove the status of science from anatomy? As noted at the end of the last chapter, it causes one to wonder what Hegel would think of modern imaging technologies, such as X-ray, ultrasound and MRI, with which the internal organs and other structures of a living body can nowadays be mapped and partially viewed.

Doubtlessly, modern anatomy employs new technologies to study the body. Nevertheless, the question that matters is whether contemporary anatomy has undergone such a radical change in its essence that Hegel would call it a science today. The method of anatomy, which is naming sensually perceived items and learning them by heart, has not much

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[21] Cf. *Historisches Wörterbuch der Philosophie*, vol. 1, p. 102.
[22] Hegel, 1991, pp. 39f, § 16 (8/61).
[23] Cf. *Historisches Wörterbuch der Philosophie*, vol. 12, p. 950, "*Aggregat*"; Cf. Miletto, *Glauben und Wissen im Zeitalter der Reformation*, 2004, pp. 163ff. The issue of systematicity will be dealt in 3.5.2.

changed. Learning to designate things is not a proper science on its own, for it is still a mere taxonomical endeavor which does not consist of holistic interpretations and knowledge of processes, i.e. knowledge of the forms of process in the world and of how they emerge and decay. As said before, the brain simulations are themselves not a living entity, but dead objects that call for interpretation. Modern anatomy would remain to Hegel as only a 'heap' or a 'pile' of just some more 'designations' of body parts, a mere classification. Such proto-knowledge would not be enough for the knowledge of the spirit in its liveliness and wholeness.

The purpose of Hegel's critical discussion of anatomy is of course not serve as an introduction to anatomy, but to be a preliminary demarcation of science: true science is an altering body of knowledge which is not just *descriptive*, *taxonomical* or *historical*. In this, Hegel prepares the ground for defending the nature of philosophy as a proper scientific endeavor. This preparatory character of Hegel's thought should be briefly explicated here.

Hegel is troubled by the ordinary "general view" of science which states that anatomy is a proper science and, by the same token, that philosophy is not a science. This view holds that philosophical proof does not require all the details of how the investigation is executed, the "*Ausführung*", since the thing itself, "*die Sache selbst*", the "content of this science", seems to be already included in the "aims" and "final results" declared by the author from the beginning. This ordinary view wrongly thinks that it already "possesses" the science of philosophy, in contrast to the science of anatomy in which the thing itself seems to be out of our reach. This problem is still highly relevant today: it seems that everyone can be a philosopher by nature, but no one can be anatomist by nature. Hegel challenges this view by arguing that it is as a result of speaking about everything, even "aims" and "universals", in a "historical" and "uncomprehending way" (*begrifflos*), in which one also speaks about

nerves and muscles. Such a way of speaking, which is devoid of conceptual system, is pseudo-philosophical and prevents the thinker from reaching the truth in a real scientific manner. Since Hegel believes that we can deploy scientific concepts within philosophy, his goal is to show that philosophy is a genuine science which is actually far more scientific than anatomy. The case of anatomy ought to show that science cannot simply mean *kennen* in the sense of knowledge by acquaintance.

3.1.2 Science is not purely empirical: against Baconian and Humean empiricism

For the common view of science, there is nothing more obscure than the claim that science is not purely empirical. Already in his early years, Hegel did not consider science only as a descriptive empirical endeavor, as "*Empirie*". In an early book review, he claims that an empirical proof procedure by observation is not science because it merely compares appearances with concepts, arguing that "in what the author [Gerstäcker] calls empirical natural science, we certainly proceed like that, but it is thus only empirical cognition [*Empirie*] and not science".[24] As shown in 1.3.1, the young Hegel also does not use the term science to refer to empirical cognition, but rather to theoretical knowledge, albeit one that is obtained by "mere reason" and "mere historical or deduced knowledge". It is one of Hegel's oldest fundamental ideas that neither the essence of scientific knowledge nor the project of its justification consists in purely empirical procedures.

[24] In "Gerstäcker's Deduction of the Concept of Right" (1802): "*In dem, was der Verfasser empirische Naturwissenschaft nennt, wird freilich so verfahren, aber dafür ist es Empirie und nicht Wissenschaft*", 2/276f), in *Erlanger Literatur-Zeitung, Kritikenblatt*, nr. 35, 1802.

In our repudiation of methodological naturalism in Hegel, we have already mentioned that he does not conceive of his "Philosophy of Nature" as an empirical investigation and even refrains from claiming that physics is a purely empirical science, because "the principal charge to be brought against physics is that it contains much more thought than it admits".[25] By presenting his "Philosophy of Nature" as an alternative model for philosophy of physics, Hegel exemplifies his critique of Hume's empiricism, which he demonstrates at the beginning of the *Encyclopaedia* in paragraphs 37–39. Hegel identifies Hume's empiricist view as the prototype of modern skepticism about the possibility of true universals. Hegel's logic-based model of speculative philosophy of nature consists in the analysis of the meanings and contradictions of basic categories. He does not negate empirical cognition totally, but rather acknowledges that empirical inquiry provides science with the "ground" (*Boden*) and the "material" (*Stoff*). However, unlike the empiricist way of thinking, Hegel insists that, since the empirical element is only the sensually perceptible part, it does not amount to the "system of science" itself. He associates the most "fundamental illusion of scientific empiricism" with the habit of "unconscious" and "uncritical" presupposing metaphysical categories. Confining itself to the finitude of the sensually perceivable, the Humean empirical consciousness takes, without any further questions, the subjective realm of particular experience and individual perceptions to be the guarantee for the absoluteness of knowledge and then raises artificial doubts about the verifiability of the universal forms. In this way, no sufficient objectivity can be really attained.

In the chapter "Observing Reason" in *Phenomenology of Spirit* Hegel deals with the problems of modern empirical science, not in order to

[25] Hegel, 1970, p. 3; 9/11.

naively praise the achievements of empirical science, but to prepare the reader for the constitution of another concept of science – a generic-speculative one, namely his own. There is, however, a pro-Baconian reading which interprets Hegel's relation to empirical science as positive and as emerging "clearly" from Hegel's alleged enthusiastic approval of Bacon's philosophy in the *Lectures on the History of Philosophy*.[26] Pinkard attempts to find a proof for Hegel's support of Bacon's empiricism in Hegel's own words: "And without the education (*Ausbildung*) of the experiential sciences for themselves philosophy could have come no further than the ancients".[27] In fact, without context, these words say only supposedly what Hegel really thinks. Pinkard downplays Hegel's actual critique of Bacon. If we look at the original, we find: "*ohne die Ausbildung der Erfahrungswissenschaften für sich* hätte *die Philosophie nicht weiter kommen können als bei den Alten*".[28] These words are not Hegel's report on his own view, but what Hegel says that Bacon thought to himself. Pinkard's new pro-Baconian reading is questionable because Hegel's use of the verb "*hätte können*" indicates here, as in the rest of this paragraph, the *Konjunktiv I* for expressing doubts in indirect speech, which means that this is what Bacon said to himself, as Hegel believes. In this way, Hegel clearly dissociates himself from Bacon's view and, as proof of this, even explicitly states at the end of this paragraph that: "This is the spirit of Baconian philosophy".[29] Hegel's talk of the "spirit" of Baconian philosophy is ironical, because, as he explains just before, Bacon denies the role of anything like "spirit" in science and knowledge. Right after this paragraph, Hegel criticizes the fact that Bacon takes the animal sensual experience as

[26] Pinkard, 1994, pp. 80f, 372f.
[27] Ibid., p. 373, footnote 7 (Pinkard's translation).
[28] 20/79 (my emphasis).
[29] Ibid.: "*Dies ist der Geist der Baconischen Philosophie*".

the only source of knowledge, instead of considering unique human "thinking" as well. There is one place that seems to be Hegel's 'laudation' of Bacon's 'worldliness', but in fact, typical for Hegel, right after this sentence Hegel derides Bacon for believing, in a one-sided "uncritical" manner, that empirical science deals in truth only with sensual "experience". Bacon forgets that while we generate knowledge we actually turn multiple perceptions of multiple "sensual particulars" into a "universal" form of thought, a mental representation. Hegel concludes that the biggest deficiency of Bacon's way of thinking is the lack of acknowledgement of the differences between *universalizing* and *particularizing*. In his final analysis, the fatal consequence of Bacon's outdated system is that the faculty of reason does not really come to acknowledge itself *as* what it is, *as* reason.

In spite of the above, one can speak, in a certain sense, of Hegel's 'speculative' version of empiricism, if one keeps in mind that Hegel delivers in the *Phenomenology of Spirit* an alternative understanding of the empirical element of experience as the conceptual self-experience of consciousness. Our experience rests upon the conceptualization of perceptions and inferences drawn on the basis of theoretical dispositions. This Hegelian 'conceptual empiricism' has nothing to do with common positivism, for it does not take human experience to only consist of sense-data or sensual perceptions, but rather to be enduring objectifying actions of consciousness which develop new conceptual schemes. Such 'empirical knowledge' of consciousness is not equivalent to animal vigilance and awareness, but to the recognition of conceptual structures in its objects and so with the knowledge of consciousness regarding itself.

However, as we shall see in the next section, although Hegel holds that the empirical method, traditionally understood, is not sufficient to what he

calls science, his non-empiricist concept of science ought not to be simply replaced with the one-sided ‘rationalizing’ known as ‘armchair reasoning’.

3.1.3 Science is not rationalizing: alteration in Hegel’s concept of science

As mentioned before, in the period of 1793-1801, the very young Hegel defined scientific activity as a pure rationalizing by means of the mathematical method and formal logical inferences, as he was still influenced by the romantic critique of the Enlightenment. In his first essay, known as the “Tübingen essay”, he claimed that science is nothing more than the direct corollary of simple syllogisms performed by “mere reason”, by *räsonieren*. The latter became one of Hegel’s favorite terms for a non-dialectical reasoning and a leading-to-nowhere calculus, which he considers as an intellectual assault, as something rotten. He continued to regard such “deduced knowledge” as artificial knowledge without value, for it is *not wisdom* and cannot help us in understanding how our moral decisions and systems of law came to be authoritative for us or how different religions or conceptions of art emerge out of each other.

However, very soon after his first essay, Hegel began to see that this formalistic description of science did not correspond to the true idea of science, but rather to the abstract way of scholastic thought, which he called the “old metaphysics” or *Verstandeswissenschaft*. He firmly believed that the problematic “old metaphysics” ought to be completely overcome in the new post-Kantian era. This purely analytical *Verstand*-based science comes thereby under attack in all of his main works. In the “Preface” to the *Phenomenology of Spirit*, where one can clearly witness the positive alteration in Hegel’s relation to the content of proper science, he officially excludes the mathematical method from the realm of philosophical methodology. In a somewhat counter-Fregean prophetical speech, 70 years

before Frege's influential work *Begriffschrift*, Hegel recognizes that the "formalism" that already dominates science will keep accompanying science until "the cognition of the absolute reality" successfully grasps its own nature and overcomes the naive undialectical mind-world gap. There is thus a change in Hegel's relation to the ideal content of the concept of science after the early period, a turn-about, almost an about-face. After his declaration of love for science in *Phenomenology of Spirit*, we observe a permanent devotion to his new non-formalistic conception. In *Science of Logic*, mathematics is discarded again as "subordinate science".[30] The point is that true philosophical science cannot contain only purely analytic sentences, as mathematics does, because a philosophical science has to establish a genuine relation to the world, and it does this through world-encompassing propositions. It is not enough to present a rational, consistent system of true sentences, for they also have to contain knowledge of real beings in the form of disclosure of the world, and not only of numbers, proportions or quantities.

The alteration of Hegel's early concept of science has methodological significance for the line of reasoning in our inquiry, because when Hegel goes against the mathematical-formalistic concept of science, he does not only attack external conceptions or historical views of other philosophers, he also systematically reviews his own concept of science from his early years. Since the formalistic way of understanding science is familiar to Hegel from his own world of thought and is thus *natural* to him, he aims at its *Aufhebung*. It belongs thus to the constitutive act of Hegelian scientific philosophy to begin with the dialectic critique of one's own natural views.

The aporetic situation is the following: Hegel's concept of science seems to be *neither empiricist nor rationalist*. This statement is however

[30] Hegel, 2010, p. 9; 5/16.

not simply a self-contradiction. Hegelian science has neither only empirical-phenomenal nor rational-mathematical justification. But the question remains as to what exactly Hegel discovered that justified his U-turn over these conceptions. Before we turn to this question, there is another prevailing conception of science that Hegel partly negates and that is worth discussing: the Kantian.

3.2 Overcoming the Kantian concept of science

Hegel principally agrees with Kant's fundamental insight about the systematical structure of proper science. Yet, he attacks Kant's concept of science and explicitly repudiates some basic Kantian thoughts. Since we cannot deal here with all aspects of Kant's philosophy of science, we shall focus on (1) Kant's epistemological construction of the "thing in itself", (2) his priority of natural science as the safe way to science, (3) his statement that his work is not the system of science itself, but (4) only a search for secure method, and (5) his view about the accumulation of science.

Hegel's main criticism turns on Kant's thesis of the unknowable "thing in itself", which results in what Hegel derides as "finite" epistemology, a theory of cognition that overemphasizes the limits of human cognition. He argues that Kant's epistemology presupposes the strict separation of human cognition from "the absolute", which is in effect the goal of cognition. Hegel dismisses the very idea of Kant's transcendental "thing in itself", the intelligible "noumenon", which is the opposition of "phenomenon", i.e. of mere appearance of objects, as contradictory and as nothing less than a "ghost" (*Gespenst*).[31] He argues that, instead of considering the *Geistige*, that which is inherent to the mind, Kant is satisfied with the construction of

[31] 5/41.

the "thing in itself", which is, after all, still defined as a "thing", and hence as a finite object of sensuality. Like Fichte before him, Hegel recognizes that Kant's central philosophical concept is in fact skeptical about conceptual mediation. Hegel's solution to the problem of the objectivity of such "thing in itself" consists in regarding this concept *as a subjective thought*, as *our thought*, and thereby not as something that can be truly divided from our consciousness. The "in itself" (*Ansich*), which is supposed to be intrinsic to the "thing", is at the same time a relatum "for us" and so "for the consciousness". Hegel calls this imagined relatum, which in Kant's own terminology is "abstract", an "empty" thought. For Hegel, Kant's subjectivist notion of science lacks thus the most essential thing, namely "the absolute", as the infinite divine cognition, and with it, the claim for the very possibility of absolute truth.

Hegel's uneasiness with the lack of a plausible notion of absoluteness in Kant's epistemology is expressed in *Faith and Knowledge* where he refers to Kant's epistemology as "subjective idealism", saying that "the whole task and content of this philosophy is, not the cognition of the Absolute, but the cognition of this subjectivity. In other words, it is a critique of the cognitive faculties".[32] This means that he detects in Kant a wrongly conceived contrast between the absolute and subjectivity. The Kantian project of the "*Kritik der Erkenntnisvermögen*" leads to what Hegel calls the "realism of the finitude",[33] a problematic form of realism which does not let reason, and hence science, properly perceive and grasp anything beyond the limits of the sensual-natural. Kant's conception lacks the foundation of the "highest idea" which manifests in titles such as "the eternal" and "the infinite". Hegel finds fault with such understanding of

[32] Hegel, 1977b, p. 68; 2/303.
[33] Ibid., p. 63; 2/296.

Vernunft that reduces the ontological level of its objects to that of non-conceptual sense data, a level of data which every animal can generate as well. He reproaches Kant for taking the accidental and arbitrary aspect of sensuality and naturality, which is characteristic of the empirical human being, namely the absolute "egoity" (*Egoität*), the viewpoint of the "I-ness" (*Ichheit*), to be nothing less than the criterion of truth. In other words, the maximal absolute is misleadingly set in Kant in the minimal I. One of the problematic results of this Kantian magisterial doctrine is the exorbitant critique of tradition per se. Kant denies the historicity of human knowledge.

Hegel refers to Kant's relativistic subjectivism as "formal idealism".[34] He explains that Kant asserts the impossibility of cognition because he presupposes a strong "antithesis", a diametric contrast, between finite and infinite, sensual and over-sensual etc.[35] In contrast, Hegel argues that every being can be grasped both objectively, as finite "thing" (*Ding*), within the finite realm of "being" (*Sein*), and subjectively, as a "mental representation" (*Vorstellung*) within the infinite realm of "thinking" (*Denken*).[36] Kant, for his part, feels he has to leave room for "faith". Hegel misses therein a conceptual foundation for the ideal of divine knowledge and perfect cognition reached by overindividual transsubjective *Vernunft*.[37] He articulates that the problem with Kant is not simply that Kant criticizes the *Vernunft*, but rather that his own argument paradoxically criticizes the ability of criticizing itself.

A fundamental problem arises concerning the limits of experience. Kant, like Locke before him, limits from the beginning the possible results of his epistemological investigation to the sensually experienced world,

[34] Ibid., p. 78; 2/314.
[35] Ibid., p. 63; 2/294f.
[36] Ibid., p. 76; 2/312.
[37] Cf. ibid., pp. 55ff; 2/288ff.

which means to finite knowledge and finite mind, more concretely: to the "human" mind in the sense of our "naturally" limited capacities as individuals. According to Hegel, Kant identifies a collision between the human knowing subject and the atomistically conceived things in the experienced world around him, only because he takes them both to be the absolute. This Kantian conception of finite knowledge, which on the one hand takes both the object and the subject to be the absolute, but on the other still completely divides them, is designated by Hegel as "formal knowledge". Such knowledge connects the subject to the predicate through the mere copula.[38] This non-speculative form of non-essential identity is, for Hegel, too simple, insofar as it does not contain the acknowledgement of diversity in unity. He thus criticizes Kant's philosophy as being "empirical in a totally raw manner" and possessing "barbaric terminology". Hegel even denies the scientific status (*Wissenschaftlichkeit*) of Kant's philosophy:

> "[...] for it is worked out from points of view which are inherently rude and empirical, and a scientific form is the last thing that can be claimed for it. In the presentation of it there is a lack of philosophical abstraction, and it is expressed in the most commonplace way; to say nothing more of the barbarous terminology, Kant remains restricted and confined by his psychological point of view and empirical methods".[39]

In view of this critique, one can say that Hegel's transcendental search "is driven on by a restlessness which leaves it no repose until the search for

[38] Cf. 2/310.

[39] In the summary of his review of Kant in the *Lecture on History of Philosophy* (Hegel, 1995b, pp. 430f; 20/337).

conditions has led to the unconditioned",[40] but one cannot claim that this search is simply "Kantian".[41]

Hegel's criticism concerning Kant's epistemology can also be directed at the Quinean psychologistic concept of science, which reduces the idea of knowledge per se to the capacities of the individual human subject.[42] Almost prophetically, Hegel warns in *Faith and Knowledge* that Kant's popularized view of "limited" (*beschränkt*) reason will lead philosophy one day to become empirical psychology,[43] which is exactly what happened with Quine's epistemology. The latter takes the human sensual experience to be the only true source of knowledge. Epistemology is then treated as an empirical natural science. Hegel also criticizes the outcome of such a view: the priority of natural science as the only safe way to true knowledge.

From our previous discussions on Hegel's critique of the priority of natural science, it follows that Hegel's paradigm of science vastly differs from that of Kant, who regards proper science as natural science based on geometry, primarily Newton's physics, because it is an exact mathematical representation with empirical grounding, a "rigorous science" (*strenge Wissenschaft*). Hegel, for his part, criticizes Newton for his "formalism", suggesting that mathematics is not the only proper method for philosophy, just as natural science is not the only possible model for proper science. The reason Kant upholds mathematical natural science is that he believes it to have the safest method, even though he also criticizes Newton, like Hegel, for not acknowledging the metaphysical foundations in his scientific enterprise. Kant declares in the opening sentence of the preface to the second edition of the *Critique of Pure Reason* that his life-project is to find

[40] Westphal, 1992, p. 75.
[41] As Westphal claims (ibid.).
[42] As shown in 2.3.3.1.
[43] 2/296.

for metaphysics "the secure method of science" (*den sicheren Gang einer Wissenschaft*) and the "safe way of science" (*den sicheren Weg einer Wissenschaft*). The intensive preoccupation with science as a life-project is also to be found in Hegel, but not the demand in advance for *security* or *safety*. As a matter of fact, Hegel refers to such "*Versicherungen*" as empty declarations, directing it mainly at Kant, but also at Descartes. Eventually, in clear contrast to Hegel's epistemological ambitions, Kant says that his work deals only with the "method" of science and that it is *not* a "system of science".

Another issue about which Hegel disagrees with Kant is the accumulation of science. In the first sentence of the dedication of the *Critique of Pure Reason* to the noble Prussian minister of education, Karl Abraham Freiherr von Zedlitz, Kant describes his project as supporting "the growth of the sciences".[44] Kant believes in the possibility of the "growth" (*Wachstum*) of knowledge as well as its "increase" (*Vermehrung*). The common-sense view takes the progress of science to be a quantitative progress, a steady "accumulation" of knowledge. In favor of Kant, one can say that he does not hold science to be generated by a mere accumulation of sense perceptions, but rather by a conceptual unification under the categories of understanding, the *Verstandeskategorien*. Kant's emphasis on "growth" can be read in a rhetorical context: Kant proficiently convinces the aristocratic minister that this royal project of science is in the "Excellency's own interest". The category of "growth" ought to suit the Excellency's class of wealth and richness well.

Hegel also acknowledges a kind of steady movement in knowledge, and even a progression. Yet, this is a qualitative progression, not quantitative, and it occurs through gaining more and more precise determinations, not

[44] Kant, 1998, p. 95.

simply more and more objects. In effect, the scientific progress has for him rather the meaning of an organic development of the same knowledge over time. Wrapped with different "shapes of consciousness", it is the same *Wissen*, the same action of a thinking agency, or the same "being" in the *Logic*, that only becomes more and more "determined", i.e. rich with logical determinations and conceptual distinctions. Famously, in the twentieth century it was Kuhn who brought into doubt such Kantian enlightened ideas of progress such as "development-by-accumulation", "cumulative process" and "accretion".[45] It would be thus useful to compare Hegel and Kuhn, who share several common points, as we will do in 3.6. However, as we shall see, Kuhn's conclusions about science completely differ from Hegel's.

Hegel makes a scathing attack, even more than Kuhn, on the "impulse to enlarge science"[46] in the *Difference* essay in the context of Reinhold's system. He criticizes Reinhold for conceiving science and philosophy only "as a kind of handicraft, something that can be improved by newly invented turns of skill" and hence as "a lifeless product of alien ingenuity".[47] He concludes that, in science, unlike in technological development, one ought to drop the common-sense idea of "constant improvements".[48] This recommendation goes against the vulgar view of Hegel's supposed belief in progress. Hegel warns that the enthusiasm to enlarge science ends up by considering the preceding philosophical systems as "nothing but preparatory exercises [*Vorübungen*]".[49] Such Kantian-Reinholdian enthusiasm, so he criticizes, wrongly identifies any inclusion of history of

[45] Kuhn, 1962, p. 2.
[46] Hegel, 1977a, p. 86; 2/16.
[47] Ibid.
[48] Ibid., p. 87; 2/17.
[49] Ibid. The original translation of "*Vorübungen*" as "practice studies" is misleading.

philosophy with "plagiarism".[50] While anticipating his own later thought phase, Hegel insists on a non-quantitative conception of science, whose core idea is the acknowledgement of mind's self-relationality.

Now that we have presented the main conceptions of science that Hegel rejected, we can come back to the question of what shaped his concept of science. As we will see, at some point Hegel recognized that the development of the collective self-thinking *Geist* can be interpreted as a phenomenological account of the scientific point of view. Over time, Hegel improved the formulation of his meta-thought and made it central to the reflection on the real forms of science. The next section contains a discussion on what *Geist* means to Hegel in the context of meta-science.

3.3 Science as *Geist*

3.3.1 Science as the "crown of a world of Spirit"

Hegel conceives of science as the "crown of a world of Spirit",[51] doubtlessly intending to praise it highly. Such admiration may initially seem to befit a kind of scientism, a residue of the so-called Enlightenment era. Hegel, however, does more than just convey historical enlightened thoughts, as he stresses that science is the most precious good in the world of *spirit*. Hegel's dictum emphasizes, above all, the necessary involvement of the idea of spirit in the understanding of the essence of science. *Geist*, like the Greek *nous*, indicates the cognitive faculty of reflexive thought, the intellect. This dictum conveys two interrelating meanings: firstly, science is the highest point of the world of self-aware thinking, its most significant point, the 'cherry on top of the cake' which makes it all so worthwhile.

[50] Hegel, 1995, p. 166; 18/190.
[51] Hegel, 1977, p. 7; 3/19.

Secondly, and more difficultly, science governs or controls other inner-worldly areas of the externalized spirit, such as law, history or state, and to some extent even religion and art. This scientific understanding amounts to Hegel's secularization of the concept of spirit in the sense of making it more worldly, its *Verweltlichung*[52] or mundanization. Hegel, who declares that it is science, and not religion or art, which is at the top of the world of spirit, seems to have found a special good in nothing else than modern science. Hegel's first words on science thereby raise the question of the respectable status he attributes to science: ought science to be so honored?

To better understand the meaning of the crown analogy, and not fall back to the old hazy idea of spirit's transcendence, we shall observe another eulogistic formulation of Hegel that is worth rethinking. In the oak metaphor, Hegel compares the state of the well-developed science with the strong oak tree (*Eiche*), which is the highest point of the organic development of an acorn (*Eichel*). He diagnoses "the onset of the new spirit"[53] in his time, a new beginning that is still far from being an accomplished form of knowledge, a "completed" (*vollendet*) science. Can science ever be "completed" at all? The topic of the analogical comparison is the completeness of the organic development of science out of the "new spirit". At the highlight of the development of spirit, science positively appears as an ideal, as a standard of perfection.

Furthermore, Hegel attributes to science, and hence to spirit as a whole, the perfect form of a "circle" (*Kreis*), and specifically: a kind of ourboros, the tail-devouring snake. Interestingly, Kant also uses the same symbol of circle in *Dreams of a Spirit-Seer* to affirm exactly what Hegel rejects: the

[52] Cf. Stekeler, 2014, p. 257.
[53] Hegel, 1977, p. 7; 3/19. Perhaps due to a typing error, "spirit" exceptionally appears here in Miller's translation in lower case.

self-skepticism of science, its own "modest mistrust"[54] regarding its ability to know. For Hegel, however, the image of a circle is organological, not geometrical, as he does not mean that science has come to its historical end or that it cannot be further developed. Rather, such circularity and completeness stand for the basic conditions of the enduring possibility of a non-dogmatic *living* science. It is not that the circle is closed, but rather that it makes life possible, like blood circle.

With the exception of his early years, Hegel deals extensively with science in his main works and can reasonably be considered as a lover of science, and even as a proponent of an original kind of non-naturalistic scientism. By introducing the idea of spirit in the determination of science, Hegel attempts to surmount the historical phenomenon of modern naturalistic scientism that only assures doing well with "natural spirit", and without the grounding idea of spirit as the whole of self-thought.

However, Hegelian philosophy of science can be misinterpreted as taking science to be just *one* domain of the spirit *among others*.[55] Pinkard argues in this direction when he says that "Hegelian philosophy of science aims to see scientific practice as *part* of the overall development of reflective social practice, of 'spirit'"[56] and that Hegel's accounts "constitute all the ways in which 'spirit' can appear: as art, as politics, as 'high culture', as social critique, as religion, as *science*, and so on".[57] The merit of this passage is that Pinkard is one of the few readers who acknowledge, at least once, the existence of such a thing as "Hegelian philosophy of science". Science is justly considered by Pinkard as one of the "formations

[54] Kant, 1900, p. 115.
[55] See more on this issue in section 3.5.1.
[56] Pinkard, 1994, p. 13 (my italics).
[57] Ibid., p. 83 (my italics).

of consciousness" (*Gestaltungen des Bewusstseins*),[58] but he regards science only as *one* of the formations of consciousness, one among others, and not as the most developed one or even their "absolute" form. Pinkard identifies the "formations of consciousness" – and therefore science – with "forms of life",[59] "norms"[60] or "historical phenomena".[61] But one ought to be careful not to presuppose that the term "science" refers only to modern empirical natural science. The core idea of Hegel's scientific holism is expressed in his description of science as nothing less than the *crown* of the spirit's world, and not just as some part of it. Modern empirical natural science is indeed regarded by Hegel as *only one* product of the spirit, namely of the sensual spirit. The intention of his project of dealing with *science as a whole* is, however, to mark out the path to "pure science", a path that is already a "science" on its own. The interpretation of Hegel's words should not aim at relativizing the status of science in his system by choosing without saying the empiricist use of the word science. Such interpretation can add to the puzzlement around the relation between science and spirit. The close link between science and spirit is not only evident in the phrase "the crown of a world of Spirit", but also in Hegel's concise assertion that *spirit is science*: "The Spirit that, so developed, knows itself as Spirit, is *Science*".[62] We thus need now to rethink the various meanings of science as spirit.

[58] Ibid., p. 9.
[59] Ibid.,
[60] Ibid., p. 6.
[61] Ibid., p. 9.
[62] Hegel, 1977, p. 14; 3/29.

3.3.2 The twofold meaning of the science of Geist

As aforesaid, the highly and organically-like developed spirit is for Hegel "science" itself, in the broad sense of the word. This state of the spirit is characterized in a double sense, namely as reaching the moment where spirit is "the knowledge of the spiritual" (*das Wissen von dem Geistigen*) as well as "the knowledge of itself as Spirit" (*das Wissen von sich als dem Geiste*).[63] This twofold formulation of what Hegel understands by science is not just an emphasis on the same idea or a repetition of it, but rather a discernment that is crucial for a deeper reflection on the essence of science. These words do not just come to describe the reflective situation in which subject and object become somehow the same, establishing a kind of total equality. In that case, we would have simply said that spirit, as subject, is also its own object. But there is more to it than that. By this way of determining the concept of science, Hegel depicts a specific situation where spirit, as subject, knows that it is a spirit and a subject for itself, insofar as it experiences itself as knowledge about the various beings, and as such, it also knows itself – beyond all the other objects and beings. Spirit becomes, in this situation, a well-determined object which is not even an object anymore, but a thinking self. The self-reflective spirit reaches that point "for itself" (*für sich selbst*), i.e. not only from the perspective of someone else but also from its own perspective, for "it must be an *object* to itself, but just as immediately a sublated object, reflected into itself".[64] This idea belongs to phenomenology approached in the first person.

It is unavoidable to be reminded by this double determination of science of how Aristotle defines in *Metaphysics*, *mutatis mutandis*, the stage of the best developed knowledge, using, however, the concept of god, not spirit.

[63] Ibid.
[64] Ibid., p. 14; 3/28.

Aristotle, who declares that the science sought by him, later to be known as *ta meta ta physica*, contains the knowledge of the first principle, concludes that this is the "most venerable science" (τιμιοτάτη ἐπιστήμη) and the "most godly" (θειοτάτη), for two reasons: firstly because *god* (θεός) *has it*, and secondly because *it has god* as its immediate object. The object of this metascience, which is the life of god, as the best reality, is conceived as the thought of thought, νόησις νοήσεως.[65] This recursive concept of self-reflective thought, the thought that thinks of thought and hence of itself, i.e. the self-thinking thinking, is Aristotle's core idea of divine knowledge as infinite reflective knowledge. This enduring self-referential *noesis noeseos* represents the dynamic life of the 'supreme being' as the "unmoved mover" and hence as the pure actuality, *energeia*, – an idea that comes back in Hegel's view of the living substance that is a subject too, "pure, *simple negativity*".[66]

We now turn our attention back to Hegel, whose spirit was born out of Aristotle's *nous*, but went beyond it. Hegel works out a different ontological thought: he does not declare that god alone is the owner of this higher self-conscious science, but also the human spirit. He adds to the determination of spirit the meaning of our common ethical and cultural praxis forms, indicating that it is the spirit, and hence the humanity, as an externalization of the spirit, that makes and develops science of science as well as science. By this, he takes an intellectual step that brings him beyond the Aristotelian theology and closer to the spirit of the modern humanities. Science is thus said to be the domain where we experience the spirit at work, its "actuality" (*Wirklichkeit*): "Science is its actuality and the realm

[65] Aristotle, *Metaphysics*, book 12, 1074 b34.
[66] Hegel, 1977, p. 10; 3/23.

which it builds for itself in its own element".[67] Taylor calls this thesis the "principle of necessary embodiment",[68] meaning the embodiment of the spirit in living subjects, language, and institutions. It is however important to remember that, although Hegel articulates that it is spirit that creates and "builds" (*erbaut*)[69] science, the role of spirit in Hegel's philosophy of science is not to create a pseudo-religious "edification" (*Erbauung*),[70] i.e. an abstract vague feeling of being uplifted or elevated by emotions. At such edification aims the romantic view of science that misunderstands the essence of science. Hegel rather wants to remind us that spirit, as the ethical-normative intersubjective sphere, is that which makes us reasonable beings in the first place.

The inclusion of the idea of the self-reflective spirit in Hegel's determination of science is not arbitrary, but crucial for the understanding of the basic meaning of science as the realm of thought where we reflect on ourselves and the good justifications of our actions. Hegel defines science in respect of the spirit also in the *Encyclopaedia*, where he states that "the aim of all genuine science" is that spirit "shall recognize itself *(sich selbst erkenne*) in everything in heaven and on earth". Science, as the self-recognitive activity of spirit, is defined as spirit's "apprehension (*Erfassen*) of itself".[71] The reference to "spirit", along with "the absolute", can be one of the main obstacles for the contemporary exegesis of Hegelian philosophy of science. The naturalistic reading must notice and admit that Hegel did not explicate that science is "the crown of a world of Nature". The difficulty of understanding the relation between science and spirit is

[67] Hegel, 1977, p. 14; 3/29.
[68] Taylor, 1975, p. 83.
[69] Hegel, 1977, p. 14; 3/29.
[70] Ibid., p. 5; 3/16.
[71] Hegel, 2007, p. 3, § 377, *Zusatz* (my brackets); 10/10.

affected also by the problem of translating *Geist* as spirit. This problem shall be presented in the following.

3.3.3 On the translation of Geist

The existing translations of *Geist* as spirit and mind can cause difficulties in understanding the term.[72] The polysem word *Geist* evidently suffers from overdetermination to the extent that the *Langenscheidt Encyclopaedic German-English Dictionary* (1990) lists 16 distinct entries for *Geist*. This word comprises such different meanings as demon, ghost, soul, brain, mind, spirit, inner meaning of a law, etc. In his *Hegel Dictionary*, Michael Inwood differentiates between nine Hegelian technical uses of the term *Geist*, from general "human mind" and psychological "subjective spirit" to social-institutional "objective spirit", "world spirit" and "absolute spirit", to list a few.[73] Inwood correctly argues that "Hegel views these not as distinct senses of *Geist*, but as systematically related phases in the development of a single *Geist*",[74] because "Hegel begins by using a term in one or more of its already familiar senses and then develops his own sense or senses from it".[75] However, one can notice that what recurs in all these meanings is the Hegelian idea of *Geist* as the secularized self-knowing we-subject.

It is therefore unsatisfactory to translate *Geist* only as spirit or mind, without any comment. The problem arises because, on the one hand, the term spirit may bring to mind the religious-theological context of Holy Spirit as a metaphysical supernatural being, an unreal invisible entity. *Geist* would then seem to stand for mere immateriality, emptiness or something

[72] David Charlston wrote his dissertation on the ambiguity of the translations: *Hegel's Phenomenology in Translation: A comparative analysis of translatorial hexis* (2012).
[73] Inwood, 1992, pp. 274–277.
[74] Ibid., p. 276.
[75] Ibid., p. 14.

like a ghost.[76] On the other hand, the term mind has much too widely used meanings, varying from a mere opinion, as in 'changing one's mind', to a personal decision, as in 'making up one's mind', memory, as in 'keeping in one's mind', sanity, as in 'losing one's mind', thought, volition, feeling etc. Above all, the problem of mind in the Hegelian context is that mind is usually treated as an individual I-subject, as something each one of us has 'in our brain', which Hegel designates as "*der subjektive Geist*", the finite embodied intelligence, in contrast to the collectively or socially understood general subject. This simplifying use is especially noticeable in the contemporary common use of the term 'the mental' in philosophy of mind and cognitive science. Here, the idea of *Geist* is not understood as Hegel takes it to be, namely as a collective intellect in the sense of a community organized around a true concept, a "*Begriffsgemeinschaft*".[77]

The discomforting translation of *Geist* leads the interpreter to look for a deeper meaning of the term in various possibilities such as society, humanity, arts, institutions, culture etc.[78] The problem with such concrete suggestions is that they designate the various possible externalizations of *Geist*, the examples given by Hegel himself. The sought translation of *Geist* as a metacategory is supposed to designate the intrinsic being that wallows and prevails in *all* these externalizations, all these realized *Geist*-products. The *Geist*, like the *nous*, is the optimal knowing subject, because it is related to itself in its knowing.

However, the difficulty in the translation of *Geist* is not the root of the main problem, but only a symptom that reveals the existence of a hypodermal problem in the understating of the original text. The main problem of rendering *Geist* or *nous* into a useable English term is rather the

[76] Cf. Hardimon, 1994, p. 43.
[77] Cf. Stekeler, 2014, p. 349.
[78] Cf. Hardimon, 1994. p. 42.

absence of a useable term and hence the lack of conceptual clarity regarding its meaning. This specific absence exists due to a general absence of a living theory of *Geist* within contemporary philosophy of science. In order to understand the nature of *Geist* better, there is a need to work against this absence. Hegel, for his part, shows that this is possible due to the method of philosophical phenomenology that reveals the activity of *Geist* in the history of thought. The Hegelian program of the dialectical language of thought is not simply concerned with reaffirming the old post-Aristotelian medieval metaphysics, because the revealing of the active life of *Geist* in the *Geist*-world implies the revealing of concepts *in their reality*, represented by certain figures of thought and schools of thought. This kind of investigation belongs to the process of real self-knowing. According to Hegelian thought, such disclosure of the operative use of concepts, which is done by the *Geist* itself, is relevant for the introduction to any philosophy of science to come.

In order to approximate more effectively Hegel's concept of science, a rethinking of the problem of the translation of *Wissenschaft* is also required, as this also causes uneasiness. We shall turn to this now.

3.4 On the translation of *Wissenschaft*

3.4.1 A preliminary note on the problem of translating Wissenschaft *as science*

The guide question of our inquiry turns on the meaning Hegel attributes to the word *Wissenschaft*. There is a general problem - not only in Hegel - in translating the German word *Wissenschaft* simply as science, without any comment on the inherent distinction between the two terms. At least morphologically, it is obvious that *Wissenschaft* is a derivative of *Wissen*, of knowledge, designating the development of knowledge. A German folk

etymology says that *Wissenschaft* is that which *Wissen schafft*, that which creates or produces knowledge. *Wissenschaft* means thus the process of the production of knowledge. The term *Wissenschaft* is also used in German as the translation for the Latin *scientia* in the sense of the philosophical quest for knowledge. *Wissenschaft* can be described as systematic knowledge or theoretical knowledge. It is therefore plausible when Pinkard argues that whenever Hegel speaks of *Wissenschaft* he means "'science' in the German sense of *Wissenschaft* – that is, a kind of structured theoretical knowledge".[79] It is not unproblematic, though, to add that this knowledge is of "some circumscribed domain".[80] *Wissenschaft* has rather a generic use in German that refers to the universal idea of scientific knowledge, the epitome of knowledge. The particular sciences are called the *Einzelwissenschaften* or simply *die Wissenschaften* in the plural form. Hegel scholars are certainly right when they decide to say something about the special sense of the word *Wissenschaft*. Whereas in German one understands the generic use of the word without much difficulty, such use does not seem to exist in English anymore.

It becomes a bit perplexing when Pinkard explains that for Hegel *Wissenschaft* does not only mean "theoretical knowledge", but also a "structured theoretical account of knowledge".[81] At this crucial locus of definition, Pinkard does not sufficiently reveal to us the problem of translating *Wissenschaft* as science, although he does touch on the issue. Does *Wissenschaft* mean "account of knowledge" as well as "knowledge"? Is it always like this or only in Hegel? Pinkard actually claims that Hegel's "theory of knowledge" is "theory of the ground of all knowledge" which "would be", again, "theoretical knowledge". The term *Wissenschaft* seems

[79] Pinkard, 1994, p. 4.
[80] Ibid.
[81] Ibid., p. 5.

to simultaneously mean “knowledge”, “account of knowledge” and “theory of the ground for knowledge”, whereas the words “account”, “theory” and “ground” are left underdetermined and only appear to be more mysterious. In defense of Pinkard’s reading, one can say that the unsolved fundamental gap between his own concept of science as modern empirical natural science and the content of Hegel’s concept of science was not completely ignored, as he is at least aware of the problem of translating *Wissenschaft* simply as science.

I shall continue the analysis by reconsidering the existing translation of Hegel’s *Wissenschaft* as “Science” in upper case.

3.4.2 The translation of Wissenschaft *as Science in upper case*

Whereas the plural form “*die Wissenschaften*” in Hegel is translated as “sciences”, the term “*die Wissenschaft*” is translated by Miller as “Science” in upper case S. This translation causes one to wonder what is so special about the term *die Wissenschaft*. Why not use science in lower case? This choice of translation poses the question of the meaning of *Wissenschaft* in a fruitful comparative way that is not possible in the German discussion of the original text.

The upper case S in Miller’s translation is, at least initially, a confusing neographism. In fact, Miller is not the first to capitalize Hegel’s terms. There are already several occasions of translating *Wissenschaft* as “Science” in Stirling’s *The Secret of Hegel* (1865), along with the normal use of the term “science” in lower case. It seems that translators ask themselves why Hegel says something like “the science”. In contrast to English, in German, it is common for *Wissenschaft* to appear as *die Wissenschaft*. But the questions remain as to why the term *die Wissenschaft*

regularly includes the definite article, and as to how to transfer the uniqueness of this word grammatically into English.

When Hegel speaks of "*die Wissenschaft*" he refers to science in general. He does not mean a particular science. Although the German *die*, just like the English 'the', usually stands for the definite article referring to a noun that is already known to a specific listener, it can also indicate, like in our case, the *generic use* of the definite article, like the 'the' in 'the human being', *der Mensch*. It can also indicate the uniqueness of one thing, as in 'the sun', *die Sonne*. The *die* in *die Wissenschaft* does not thus refer to any specifically determined science, as the ordinary definite article usually does, but rather to the idea of science itself which is taken to be generally known to the listener. *Die Wissenschaft* is the project of all the sciences together. In English, in contrast, it is simply not common, at least not anymore, to speak generally of 'the science' in the broad sense, when referring to the idea of scientific knowledge or to the project of the various particular sciences.

Not having a specific and proper way to signify this distinction in ordinary language, Miller prefers the translation "Science" with a capital S, just as in other Hegelian terms such as *Spirit*, *Idea*, *Reason* etc. This use has already been compared with "over-inflated rhetoric or extravagant metaphysical claims".[82] In fact, the translator aspires to render the special tone in which Hegel adds predicates to subjects, as he is aware of Hegel's speculative mode of using concepts, in which he aims at both analyzing and synthesizing a certain concept in one and the same sentence. But Hegel's own voice is actually enough to hear his philosophical treatment of the hidden layers in the concepts. Miller's thought-provoking style aims at resembling the way the German language signifies all its nouns, its

[82] Charlston, 2012, p. 167.

Substantive. The rhetorical uppercasing is an attempt, more or less successful, to solve the problem of transferring the generalness of the meaning of *die* in *die Wissenschaft*. This meaning is in accord with the basic idea of the universality of science on the one hand, and the unity of science in the sense of its wholeness on the other. These two conceptual determinations are explicitly discussed by Hegel, and they are highly significant for understanding his concept of science.[83]

Nonetheless, I would suggest that the term science without articles or upper case S can be said to have – positively formulated – the zero article, which is used in English with other nouns, like school, class, university, hospital and government. The use of zero articles can indicate the *institutional sense* of such general nouns. In this respect, it is appropriate to translate *die Wissenschaft* as science in lower case and it is perhaps, as David Charlston says, "deliberately more modest" and "more reasonable".[84] The same goes for the term philosophy, which is rendered in German as *die Philosophie*, and spirit, *der Geist*.

We cannot now avoid being confronted with the seemingly insurmountable hermeneutic gap between the content of the concept of science in Hegel's time and our own time. The next section will explain why this gap is a kind of *synecdoche*.

3.4.3 The synecdoche of science: from 'knowledge' to 'natural knowledge'

Science, as is well known, lives in different languages. The English word science comes from the Old French *science*, which was derived from the Latin noun *scientia*, 'knowledge', and the verb *scire*, 'to know'.

[83] Cf. Tom Rockmore's essay "Hegel and the Unity of Science Programm" (1989a).
[84] Charlston, 2012, p. 167. Charlston does not explain the philosophical consequences of the semantic differences between 'definite article' and 'zero article'.

Interestingly, whereas the analytic verb *scire* has the proto-Indo-European root *skey* which means to split, dissect, separate or discern, like in *scindere*, in the Greek *schizein* or the German *scheiden*, the verb 'to know' has the same root *gno* as the Latin *gnoscrere* or the Greek *gignoskein*. In contrast to both, *Wissen* has the root *ueid*, 'seen', like in *videre*, and in the Greek *eidenai*, 'to know'. The concept of knowledge thus accommodates and unites two ancient paradigms: knowledge as discerning and knowledge as seeing. Be this as it may, when we use the term science nowadays, we usually do not think of knowledge in a general or abstract manner. Rather, we think of a certain kind of knowledge we also call scientific knowledge. But science, of course, cannot be simply defined as scientific knowledge, where the explicandum comes back in the explicans. This etymological state of the term gives rise thus to the following question: how did science come to differ so vastly from knowledge?

Roughly until the Enlightenment, science meant *scientia*, knowledge in general. At the same time, it also meant any systematic knowledge and any academic discipline. In most of the Roman languages the word corresponding to science still carries this meaning. As natural philosophy gradually gave way to the term natural science, the primary meaning of the word science became limited to empirical research. The latter, however, is not *scientia* anymore, but rather a form of data assembly. This shift in the meaning of the word science from knowledge in general to natural science can also be partly identified in the German word *Wissenschaft*, to leave out Hegel and some others, already at the "end of metaphysics" during the eighteenth century.[85] The common explanation for this process is the alleged success of the natural sciences. But in fact, this is a rather historical misconstruction that has led to what Husserl called "*Krisis der*

[85] Cf. Jaeschke, 2010, p. 176.

Wissenschaften". *Wissenschaft* is no longer understood as reasonable philosophical knowledge, but rather as a particular, mostly empirical, science which proceeds in a historical-like manner and relates only to particular details.[86] Wissenschaft, which became 'science' in the common sense, is thus wrongly conceived as *historia* or *Naturwissenschaft*. Wissenschaft, albeit in a weaker form, because the humanities are still called *Geisteswissenschaft*.

The change of the meaning of science is not simply a historical or natural shift from *scientia* to modern science. This change corresponds to a constriction of the meaning and ought not to be merely categorized as an etymological change unworthy of philosophical deliberation. The substitution of the term 'modern empirical natural science' simply with the term 'science' presents us with a narrowing or downsizing figure of speech. Such use of the term is not a metaphor, but a metonymy that can be classified as *synecdoche*, namely *totum pro parte*. In a synecdoche a term for the whole of something refers to a part of something or vice versa. In the *synecdoche of science*, the general term science is taken to be adequate for the presentation of only one component of science, natural science, so that the term science is literally narrowed.

This is, however, surely not only question of semantics. This synecdoche in the term science manifests the received view of science, the *doxa* of science. It is a rhetorical strategy to promote naturalistic ideology, according to which only natural science is valid as proper science. This narrowing ideology takes itself to be a necessary ontological position in the theory of science; whereas, following Hegel's line of thought, it is unaware of the necessity to overcome its own fundamental position – if it is willing to investigate the truth of itself.

[86] Cf., ibid., p. 175

3.5 What is science?

Now that we have contemplated the different views of science that Hegel negates, we are more prepared for the question of what science *is*. Like every question of the form 'what is x?' the question 'what is science?' presupposes the very being of that which is called 'science'. This question is thus somehow wrongly formulated and should read more rigorously as follows: what is that which eventually *becomes* science? How does anything *become* science? What makes anything into science? What does science do? As we shall see, the reason for employing the category of 'becoming' rather than 'is' is that the 'being' of science, in Hegelian terms, consists in a constant alteration and development of a living whole, "*ein werdendes Ganze*", performed by a self-conscious being.

The next sections deal with Hegel's basic ideas in a reconstructive manner and can be read as preliminaries for a broader discussion on his philosophy of science.

3.5.1 Self-knowledge

The idea of *Wissenschaft* as the development of self-knowledge in general, and not only of natural science, also continues to remain at the center of Hegel's terminology after *Phenomenology of Spirit*. A good example of this conception can be found in an early systematic sketch for the *Encyclopaedia* from 1808. Hegel wrote it for his pupils at the time that he was teaching logic in a high school in Nurnberg.[87] In the last part of this work, at the clearly highest point of the system, Hegel poses a section on

[87] Karl Rosenkranz published it in 1840 under the title *Philosophische Enzyklopädie für die Oberklasse*, among other Hegelian *Texte zur Philosophischen Propädeutik*.

science called "*III. Die Wissenschaft*" (§ 208), located after art and religion, in the last and third part "*Wissenschaft des Geistes*". In this paragraph Hegel attempts to define science:

> "Science is the conceptualizing cognition (*begreifende Erkenntnis*) of the absolute spirit. When the absolute spirit is being grasped in a conceptual form, the whole alienation within knowledge is sublated (*aufgehoben*), and knowledge has reached perfect equality with itself. This knowledge is the concept (*Begriff*), whose content is [the concept] itself, and which conceptualizes itself (*sich begreift*)".[88]

This definition of science as the conceptualizing cognition of the absolute spirit performed by the self-conceptualizing concept proves not to be that simple at all, as it raises question upon question: who is the absolute spirit that science confronts? How can it be the subject of human cognition? Why is there alienation in knowledge in the first place? How can it be sublated? What does it mean that knowledge is equal with itself? How can the concept conceptualize itself in a non-mystical way? One thing is clear: science is a perfect knowledge, a kind of *noesis noeseos*. But is it possible at all to have such knowledge?

In this definition, Hegel repeats three elements from the definition in *Phenomenology of Spirit*, with which we have already dealt: (1) the concept (*Begriff*), as the result of the act of conceptualizing (*Begreifen*), i.e.

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[88] 4/69: "*Die Wissenschaft ist die begreifende Erkenntnis des absoluten Geistes. Indem er in* Begriffsform *aufgefaßt wird, ist alles Fremdsein im Wissen aufgehoben, und dies hat die vollkommene Gleichheit mit sich selbst erlangt. Es ist der Begriff, der sich selbst zum Inhalt hat und sich begreift*". Wolfgang Bonsiepen dedicated an essay to this seldom-discussed passage: "*Zur Datierung und Interpretation des Fragments 'C. Die Wissenschaft'*", in *Hegel-Studien*, 12, 1977, pp. 179–189.

of understanding through reason, (2) the spirit in its absolute form and (3) self-knowledge. In the phrase "cognition *of* the absolute spirit", we encounter again the double meaning which echoes the Aristotelian way of thinking. In the *genitivus objectivus* this phrase refers to a cognition whose object is the absolute spirit, whereas in the *genitivus subjectivus* it refers to a cognition generated by the absolute spirit. This sort of utter cognition involves being identical with itself after quitting being "alienated" knowledge. The latter always takes its object to be necessarily other than itself, namely other than knowledge. The novelty of this Hegelian observation is its location at the end of the system, at the last 'stop on the line', which is not simply a line, but rather a circuit. This final destination represents a kind of sublime point within the Hegelian non-descriptive theory of *Wissenschaft* as a concrete form of self-knowledge.

This section was modified in the *Encyclopaedia* (1817), so that the corresponding chapter "Science" was renamed "Philosophy". The inevitable impression is that for Hegel philosophy and science became at this point equated concerning their systematic status. This impression can be read as an approval of Hegel's aspiration to present philosophy as science, an issue that will be discussed in detail in the next chapter. From this point on, Hegel uses the terms philosophy and science interchangeably and speaks of "philosophical science". Also in his last words on the history of philosophy, in the last chapter of the lectures, "E. Final Result", we find similar thoughts about science, namely that the last period of time, the present time, corresponds to the self-realization of the absolute spirit in science. Spirit attains actuality

> "[...] only as the result of its knowing itself to be absolute spirit, and this it knows in real scientific knowledge. Spirit produces itself as

Nature, as the State [...]. In scientific knowledge alone it knows itself as absolute spirit".[89]

Wissenschaft is here translated as "real scientific knowledge", and we can sense again the uneasiness of translating *Wissenschaft* simply as "science" and the anticipated problems in the comprehension of this term. For Hegel, science is an indication of the presence of "absolute knowledge" *in time*, not of Hegel's allegedly own "absolute knowledge" of everything.

As if to make it even more complicated, Hegel approvingly adds a Schellingian determination of *Wissenschaft* which makes it sounds somewhat enigmatic: "To know opposition in unity, and unity in opposition – this is *absolute knowledge*; and science is the knowledge of this unity in its whole development by means of itself".[90] At first glance, the schematic opposition between the *subjective* and the *objective* does not explain clearly enough the meaning of "by means of itself". How exactly can science know the "whole development" of the subject-object unity? Here Hegel raises a developmental claim in the face of science: science, as the development of knowledge, must be aware of its own immanent historical dimension. The phenomenon of our self-knowledge reflects, above all, a particular form of being, of *our* being.

With the *Science of Logic* which presents "pure science", and with the *Encyclopaedia* which presents other "philosophical sciences", we discover that science also remains at the top of the developed system after

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[89] Hegel, 1995b, p. 552; 20/460. "*Denn er [der Geist] ist dies [wirklich] nur, indem er sich selbst als absoluten Geist weiß; und dies weiß er in der Wissenschaft. Der Geist produziert sich als Natur, als Staat; [...] aber nur in der Wissenschaft weiß er von sich als absolutem Geist*".

[90] Ibid., p. 551; 20/460: "*In der Einheit den Gegensatz, und in dem Gegensatz die Einheit zu wissen, dies ist das* absolute Wissen*; und die Wissenschaft ist dies, diese Einheit in ihrer ganzen Entwicklung durch sich selbst zu wissen*".

Phenomenology of Spirit. But science is conceived by Hegel, not only as self-knowledge of the absolute spirit, but also as the *system per se*. At this point, a deliberation on the original meaning of this term can shed light on what Hegel intended by this term.

3.5.2 System

In the "Preface" to *Phenomenology of Science* Hegel describes science as a "system",[91] while following a tradition that can be traced back to the Stoic Philosophy. Plato, Aristotle, and their precedents do not mention the term σύστημα, i.e. *sýstēma*, in the context of science. Plato only uses this term in the music theory of intervals, while Aristotle uses it only in literature theory, in his description of the polis, and in his philosophy of nature in the context of organism and life genesis.[92] Referring to science explicitly as σύστημα is thus a rather post-Platonic and post-Aristotelian phenomenon. It was the Stoics who first understood science as σύσ-τημα, verbatim 'com-position'. Their system consists of premises and conclusions which together form an inference, i.e. *logos*. Hegel also thinks of composition, and it is significant to note that composition here does not mean construction. What Hegel has in mind when he thinks of science as a system is a dialectically designed set of conceptual determinations and premises, which together form a whole that is set in motion with the help of contradictions and conclusions. The logical proof of such a system is, however, in contrast to the Stoic view, not just generated syllogistically. In his use of the term *System*, Hegel rather pays tribute to the Lambertian – later Kantian – grounding distinction between *systematic* and *historical*

[91] 3/14, 22, 27, 66.
[92] Cf. *Historisches Wörterbuch der Philosophie*, vol. 10, p. 824.

thought.[93] More than anybody else, however, it was Kant who, himself inspired by Lambert, influenced Hegel's conception of science as a whole that entertains the character of systematicity. Kant's claim is that all true knowledge must be capable of being systematized under one idea. Let us briefly observe the influence of Kant on Hegel in this issue.

Kant provides a concise definition of science in his work *Metaphysical Foundations of Natural Science* (1786): "Every doctrine, if it is to be a system, i.e., a whole of cognition ordered according to principles, is called science".[94] He argues that the human *Vernunft* is discursive and thereby has a permanent interest in systematizing its knowledge by means of inferring from first principles. Science is thus a rational and logical product of human reason, which possesses in its nature the property of being systematic. Kant develops his concept of system as opposed to that of a loosened "rhapsody"[95] or a "mere aggregate".[96] Hegel does much the same when he negates the idea of aggregate of knowledge in science.[97] Kant understands by system "the unity of various kinds of knowledge under one idea".[98] Hegel adopts this idea of being "under one idea" and actively integrates the "various kinds of knowledge" into one "system of science". In *Faith and Knowledge* Hegel even takes this Kantian idea of a *guiding meta-idea* or *super-idea* to be the most positive merit of Kantian fundamental idealism.[99] Kant passed on this view, first to Fichte, and then to Schelling and Hegel, who all had high respect for the Kantian project of

[93] In Lambert's *Fragment einer Systematologie* from 1767 (cf. *Historisches Wörterbuch der Philosophie*, vol. 10, p. 830).
[94] Kant, 2004, p. 3.
[95] Kant, *Critique of Pure Reason*, B 106, 860–862.
[96] Ibid., B 860 /A 832.
[97] Hegel, 1977, p. 1 (Miller); see also section 3.1.1.
[98] Kant, *Critique of Pure Reason*, B 860 /A 832.
[99] Cf. Hegel, 1977b, p. 68; 2/303.

developing a systematic science, although they had different conceptions regarding system and science.[100] The modernist task for Kant and the post-Kantians was to make a systematic science out of philosophy, and so it was the Kantian philosophy which contributed to Hegel the idea of systematicity within a non-aggregative conception of science, along with the condition of the subsumption of the system under one idea.

3.5.3 Becoming

Besides arguing that science is a form of systematic self-knowledge, Hegel refers to the development of science as a constant *activity* of self-consciousness, namely a cognitive *process* of spirit's self-discovery. The conception of science as a changing process challenges that of science as apodictic knowledge and is one of Hegel's most influential ideas. This dynamic conception begins a new era of overcoming received dogmatic conceptions of the static 'eternal forms'. It led Richard Rorty to speak with enthusiasm of Hegel's "protopragmatism" as that which helped "to switch over from fantasies of contacting eternality".[101] Yet, the anti-epistemologist Rorty argues that such protopragmatism "helped us to start substituting hope for knowledge",[102] whereas Hegel himself never seems to have given up the "hope for knowledge". On the contrary, Hegel believes that philosophy can "lay aside the title of '*love* of *knowing*' and be *actual knowledge*."[103] Let us thus review Hegel's idea of science as a process in light of the question of pragmatism.

[100] As was shown in 3.2. and will be shown in 4.3.
[101] Rorty, 1998, pp. 232f.
[102] Ibid.
[103] Hegel, 1977, p. 3; 3/14.

The process of science, as we learn from *Science of Logic*, is demonstrable and amounts to the "deduction" of the concept of science, i.e. the justification of the capability of the scientific categories to operate thinking. Here, Hegel is thinking of *Deduktion* in the Kantian sense of transcendental proof concerning the conditions of the possibility, not in the common sense of applying some general rules on particulars in a syllogistic fashion. The processuality of science implies the "genesis" of science, which Hegel calls "*Werden*". The whole project of the *Phenomenology of Spirit* sets out to expose this genesis: "It is this coming-to-be of Science as such or of knowledge, that is described in this Phenomenology of Spirit".[104] The translation of *Werden* as "coming-to-be" is not without difficulty, since for Hegel, the logical category of *Werden* refers to that which changes constantly and so combines in itself some "being" (*Sein*) as well as some "nothing" (*Nichts*). Choosing the term *Werden* is by no means arbitrary or idiomatic, for it has the meaning of an ontological category that determines the dynamic act of emerging and decaying in the ontic space. In the process of becoming science, both being and nothing take part. The scientific process is thus a movement of self-knowledge that essentially exhibits the dimension of historicity.

Such a genealogical position towards knowledge may resemble, *prima facie*, Kuhn's pro-historicist science theory which acknowledges the importance of studying the history of science for the sake of understanding science. Hegel, however, would not be satisfied with merely pointing out the positive value of learning old scientific theories. Hegel speaks of the *Werden* of science because he wants to formulate the *fürsich* of science, its 'self', as an institutional system with an inner 'motor' that goes beyond the

[104] Ibid., p. 15 (Miller); 3/31: "*Dies Werden der Wissenschaft überhaupt oder des Wissens ist es, was diese Phänomenologie des Geistes darstellt*".

mere aggregate of individual intuitions. In the terminology of Hegel's ontology, his logic of generic entities, the basic categories of "being" and "nothing" together form a unity that comes to exist fully on its own as a *Dasein* that is for itself and is a proper subject. At the end of the *Phenomenology of Spirit*, the *becoming* of science gives birth to a concrete-universal form of *Dasein*: the scientific viewpoint.

Exactly because science undergoes a process of *Werden*, like any other object, system, or form in the world, the contents of science are describable and presentable. Since science is human practice, it can be a proper object of phenomenological investigation and something like "phenomenology" of science can be constantly further developed. Hegel understood that the idea of science as "absolute knowledge" is so mystified and its truth so veiled, that it requires a special phenomenological treatment that will show that "absolute knowledge" is the performing of self-conscious human knowledge, and not some divine unreachable knowledge. Hegel calls such presentation through logical demonstration: "*Darstellung*". This is one of the key concepts in Hegel's *Phenomenology of Spirit*: what it presents is not presentable in a trivial manner. The theme of the *Werden* of the *Wissenschaft überhaupt*, or even simply of *Wissen*, is the emergence of not less than critical scientific thought itself, the act of science when it reflectively thinks of itself. The problem is that in science one usually pays too much attention to the details of nature, as the object, and not to "the absolute", as the general performance of science activities.

The beginning of the "becoming" of science is the initial state of knowledge, which, strictly speaking, amounts in the *Phenomenology* to the "sensuous consciousness" of the "immediate spirit", i.e. to animal perception, which is de facto *das Geistlose*, "spiritless". The starting point in *Science of Logic* is also analogous to this idea of initial knowledge. There, it is the indeterminate simple "pure being", *das reine Sein*, that

refers to all that of which we can just say that 'it is', or, in other words, all that for which we can use the predicate "S *is* p" without even really knowing what S is or what p is. In order to become "*eigentliches Wissen*", consciousness has to accomplish a long way of true and false determinations, including the *Logic* itself, the pure knowledge of the categories of thought, not gathered from a fallible position of a consciousness. In contrast to the prevailing view, the unveiling of the "becoming" of science, which is Hegel's own task in the *Phenomenology of Spirit*, was not meant to be propaedeutic, i.e. the usual "initiation of the unscientific consciousness into Science" (*Anleitung des unwissenschaftlichen Bewußtseins zur Wissenschaft*)[105] in the form of mere guidance or giving instruction. Neither is this process the "foundation of science" (*Begründung der Wissenschaft*), i.e. the justification of scientific knowledge by means of setting or collecting epistemological principles. It is certainly not what Hegel considers as the Schellingian "rapturous enthusiasm which, like a shot from a pistol, begins straight away with absolute knowledge, and makes short work of other standpoints by declaring that it takes no notice of them".[106] Instead, Hegel describes his science of phenomenology as a "pathway" (*Weg*): "The Science of this pathway is the Science of the *experience* which consciousness goes through".[107] Experience is here a proper object of scientific inquiry, rather than a warrant for the validity of already existing scientific statements. Thus, the alteration of science can be investigated in the light of the alteration of experience itself. This issue affects, as we shall see now, the question of validity and truth of science.

[105] Hegel, 1977, p. 16; 3/31.
[106] Ibid.
[107] Ibid., p. 21; 3/38.

3.5.4 Truth

Hegel's conception of science as the processual "becoming" of systematic self-knowledge raises the question of the truthfulness of science: how can the altering "experience of consciousness" be a warrant for reaching true "absolute knowledge"?

Any form of radical skepticism about truth, in contrast to Hegel's conception, simply denies the possibility of truth in science. The more circumspect and modest version of this skepticism takes science to be only a search for truth or approximation to the truth, but still, not the truth itself. A classical truth-skeptic might believe that science is based on inductive logic and therefore cannot reach truth or falsity, but only "decide upon probability",[108] as Reichenbach put it. With more or less success, Popper develops further this tradition of pragmatic fallibilism. His improved concept of probability is in fact his attempt to overcome such skepticism. But for the most part, Popper's principle of fallibility is also supposed to demonstrate that scientific theories, insofar as they contain universal statements, can never reach absolute truth.[109] In this respect, even though Popper argues against Reichenbach and other post-Fregean positivists, he basically shares with them this kind of truth skepticism.

Hegel's "absolute idealism", in contrast, establishes an identity relation between truth and fully developed science, for "the true is the whole" of a scientific system. This principle can be interpreted as Hegel's version of scientific realism based on truth holism. Hegel argues that, unlike the whole of science, the various shapes of knowledge are only "moments of truth" which do not share permanent existence in the truth. The dynamic structure of the "moments of truth" is constantly modified with respect to

[108] Reichenbach, *Erkenntnis* 1, 1930, p. 186, cited in: Popper, 2002, p. 6, footnote 4.
[109] Popper, 2002, pp. 10, 16.

the thing laid in front of them, the dealt "ob-ject", *der Gegen-stand*. The endpoint of the *Phenomenology of Spirit*, the "standpoint of science", represents true knowledge as "absolute knowledge", which is at the same time the beginning of the "pure knowledge" of logic. "Absolute idealism" means that the performative claims of *knowledge*, as speech acts, are not relative to any particular human culture, and thus any particular meaning, interpretation or explanation.

At the end of the "Introduction" to his *Logik für die Mittelklasse* (1810/11), Hegel formulates the identity between science and truth in a very concise form: "Science does not search for the truth, but is in the truth and is the truth itself".[110] These gnomic words express Hegel's fundamental idea that science is a conceptual analysis of that which can guide our distinctions between true and erroneous. Science articulates what there is, in contrast to what we merely believe there is. In civic society, it is precisely science that is in charge of canonizing the true.[111] In some measure, Sellars associates himself with this idea when he proclaims that "in the dimension of describing and explaining the world, science is the measure of all things, of what is that it is, and of what is not that it is not".[112] Yet, Hegel and Sellars do not intend to express a naive trust in science. A philosophy that praises the knowability of the being ought not to be mixed up with naive faith and blind trust. It only claims that the false

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[110] 4/166: "*Die Wissenschaft sucht nicht die Wahrheit, sondern ist in der Wahrheit und die Wahrheit selbst*".

[111] Stekeler stresses thus the relation between science and truth in Hegel in the following way: "*Das heißt, wenn wir den Begriff der Wahrheit nicht mystifizieren, müssen wir ihn über den Begriff des Wissens und dieses im Rahmen des Gesamtes von sprachlich artikuliertem Wissen und einem entsprechenden empraktischen, etwa technischen, Können begreifen. Die Institution der Kontrolle und Kanonisierung des Wahren, gerade auch generischer Geltung und damit materialbegrifflicher Normen für inferentielle Gehalte, ist* die Wissenschaft" (2014, p. 153).

[112] Sellars, 1997, p. 83.

historical scientific statements are not a proof of the failure of the whole project of science. Not only does the pragmatist theory of science entertain grave doubts about the possibility of truth, but also the historicist one, which tends to mystify the concept of truth.

In order to bridge the gap he opened between his dictum 'science is the truth' and healthy skepticism, Hegel clearly distinguishes untrue phenomena of science from true science: "But Science, just because it comes on the scene, is itself an appearance: in coming on the scene it is not yet Science in its developed and unfolded truth".[113] The problem of differentiating between phenomena of science and true science, the "problem of demarcation", is at least as ancient as Parmenides' didactic poem, but it came to be known in Anglophone philosophy through the translation of Popper's "*Problem der Abgrenzung*". Hegel's basic claim is that the fact that there is knowledge that "appears" (*erscheint*) and "comes on the scene" (*auftritt*) for the first time, calls itself "science", and is published in science magazines, only means that it would take time for us to experience the full recognition of the truth of this knowledge, which is de facto still not wholly true. Appearance alone in the world of science is not a warrant for the truth. As said before, Hegel's concept of truth does not settle for Popper's criterion of probability, but also not for the Heideggerian view of truth as "unhiddenness" (*Unverborgenheit*), a view which takes the Old-Greek word *aletheia* (ἀλήθεια) literally. Hegel's concept of science as the development of critical self-knowledge over time is not derived from the scholastic correspondence theories of truth either. The novelty of his phenomenological approach is that the tension between true and untrue consists in the distinction between the "moment" of becoming visible to the consciousness, the for-me-ness, and the moment of

[113] Hegel, 1977, p. 48; 3/71.

truth that arrives at the consciousness hereafter, the in-itself-ness. Hegel reprovingly refers to the truth-skeptical approaches as "excuses"[114] or "pretexts which create the incapacity of Science".[115] He does so because he attempts to show that, in the end, since philosophy is a science whose object is the truth itself and its canonization, it has to deal with conceptual forms.

3.5.5 Form of concept

Since Hegel argues that "the truth has only the concept (*Begriff*) as the element of its existence",[116] and that science *is* the truth, we can infer that for him science also has the concept as the element of its existence. Since "the quality of being scientific" (*Wissenschaftlichkeit*) implies that one knows how to determine and apply a concept appropriately, to be scientific means to be able to "provide"[117] the concept. Therefore, Hegel argues that *Wissenschaftlichkeit*, as the praxis of applying concepts, is the only "true shape of truth"[118], and that "science is renounced" (*auf die Wissenschaft Verzicht tun*)[119] when the concept is not required for knowing the truth, i.e., when people only care about their private opinions concerning the meaning of words, and not the generally accepted one. Hegel's thoughts echo the indispensable role of the *logos* in proving the truth of the *episteme*, an issue to which we shall come back.

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[114] Ibid., p. 48 (Miller); 3/70.
[115] Hegel, 2003, p. 133 (Baillie); 3/70: "*Ausreden, welche das Unvermögen der Wissenschaft [...] schöpft*".
[116] 3/15 (my brackets). Miller chooses to translate *Begriff* as "Notion" (1977, p. 4) and Baillie as "notions and concepts" (2003, p. 4). In the next paragraph I shall explain why I chose to translate it as "concept".
[117] Hegel, 1977, p. 48; 3/71.
[118] Ibid., p. 4; 3/14.
[119] 3/17. The verb *Verzicht tut* is somewhat mistakenly translated by Miller as "abjures" (1997, p. 6) and by Baillie as "holds in contempt" (2003, p. 5).

Yet, Hegel's statement about the truth of scientific concepts is not trivial. Other truth theories put the accent on other issues rather than concepts; for example, on the sensual appearance of the being or on the divine revelation on the one hand, and on inference rules, axioms, or conventions on the other. The question arises as to what Hegel means by *Begriff* in the context of science. Miller renders it as "Notion"[120] and Baillie as "notions and concepts",[121] so that we can experience again the ambiguity in translation. Another possible, yet uncommon, translation would be "term". *Terminus technicus* means in German *Fachbegriff* and terminology means *Begrifflichkeit* or *Begriffsapparat*. *Begriff* is derived from *begreifen*, which means to grasp physically, but also the cognitive act of comprehending and recognizing, *conceiving*. Therefore, the translation of *Begriff* as 'concept' fits slightly better than 'notion' which tends to be more subjective, personal or arbitrary. Hegel knows the features of the classical term logic and uses the term *Begriff* in a consequent manner in the sense of *eidos*. The conceptual form means the *eidetic form* of being, that which science employs in its investigation and at the same time investigates.

Many places in Hegel's writing bear witness to the fact that the development of his concept of concept plays a central role in his philosophy of science, especially the fact that he dedicates one third of his *Logic* to "The Doctrine of Concept". The latter was named by Hegel "Subjective Logic" in a somewhat misleading way, because he does not mean uncertain or unobjective logic, but rather logic of the basic cognitive actions of the thinking subject. This non-formalistic logic is an analysis of linguistic forms that express the essence of concept, judgment, and inference from a purely logical point of view, not psychological or

[120] Hegel, 1977, p. 4; 3/15.
[121] Hegel, 2003, p. 4; 3/15.

phenomenological. Hegel insists that concepts are not subjective in the sense that they are relative to each subject, and hence contingent and arbitrary. He believes that the concept contains objectivity, because it is the unity of the objective "being" and "essence", their follow-up stage. He further insists that the concept is not an abstract entity of thought or an a posteriori reflection, but a "concrete" and "free" being. Let us try to explicate how this statement can become plausible.

In the *Encyclopaedia Logic*, the concept is defined as "*schlechthin das* Wirkende" and even as "*das Wirkende* seiner selbst".[122] It is said to have more actuality than the actual things and so more real than reality itself. But of course Hegel, who does not blindly promote a simple form of conceptual realism, does not argue that concepts exist in reality just like things. The concept, as *wirkend*, brings the being to 'work' and so to become something in reality in the sense of *Wirklichkeit*. It is in itself 'at work', i.e. *wirklich*. The Hegelian concept of concept possesses a much stronger sense than that of being the mere external cause of something else; it is rather the intrinsic cause of its being and hence of itself, a *causa sui*. This thought about the power of the concept might lead to confusion if one misconstrues the idea of the concept's self-actualization as some magical 'superpower' or 'vital' power. Concepts can be grasped as a form of *causa sui* in respect of the organic structure of the development of scientific thought. On Hegel's interpretation, science exists due to the "self-motion" (*Selbstbewegung*)[123] of the concept, and thereby it is not unyielding or inflexible. Rather, the results of scientific investigations eventually alter the concepts.

[122] 8/311 (§ 163).
[123] 3/65.

However, in this context, the term "self-motion" may sound a bit peculiar to the untrained ear. Hegel employs here a classical Aristotelian category to innovatively describe what he regards as the organic-like independent life of modern science, not only insofar as it has a complex "body", but also insofar as it has a "soul". Hegel wants to give an alternative explanation to the a priori status of scientific concepts: science is not based on any particular decision of one person or arbitrary conventions. He argues that scientific activity demands attention to the concept *as* concept and so to "simple determinations" (*einfache Bestimmungen*), like "being-in-itself" (*Ansichsein*), "being-for-itself" (*Fürsichsein*), "being-equal-to-itself" (*Sichselbstgleichheit*) etc. One can serve the project of the sciences if one works on the concepts themselves. As part of his discovery of the role of *Geist* in modern philosophy of science, Hegel tries to tell us – in what can be interpreted by anti-intellectualists as a radical or even bizarre avant-garde gesture – that such categories are "pure self-motions which could be called souls".[124] The interpretation of this sentence should not be mystified, as if Hegel speaks of a mysterious spiritual substance working 'within' the things. Concepts are like moving souls, insofar as they are the effective powers of the *Geist*. The motion of the concepts is "free" because it does not have an external agency. But it does not mean that this motion is simply voluntary and has a contingent destination. Rather, this motion of thought is intelligible, because it is inherent in the system of science as a whole and thus exhibits a logical necessity. As such, it must be demonstrable that the movement between the chapters of the 'book of logic' carries the necessity of itself, with itself, wherever it goes. One has to admit that Hegel uses here the power of abstract thought, at least to some degree, in order to show that in

[124] 3/56: "*reine Selbstbewegungen, die man Seelen nennen könnte*".

science we always have to appeal to already achieved generalized forms of knowledge. The innovative description of the self-movement of the categories of thinking is perhaps Hegel's Galilean "And yet it moves".

To call concepts "souls" is definitely not trivial, especially as Hegel insists on the non-psychological aspect of the *Phenomenology of Spirit*. Yet, it can shed light on the question of whether Hegel really paints some kind of naturalistic picture of science. Hegel's Aristotelian-like analogy corresponds to the following: just as one can think of the "absolute spirit" as a living idea whose end is in itself, science is a living thought bearing in itself its end. We want to know ourselves for the sake of knowing. The body of science is the entelechy of self-knowledge. Such "pure" categories, which are conceptual forms of being, *eide*, are also designated by Hegel as "determinations of thought", *Denkbestimmungen*. The essence of concept is not the unavoidable limitation of some natural finitude, but rather the quality of being *Bestimmtheit*, i.e. being de-termined. When the concepts begin to move on their own in the fields of thinking, they take a certain direction on certain roads, on which they become more and more precise, *immer bestimmter*. Thus, the original idea of setting motion in the realm of logic can be considered as the further development of an old Aristotelian idea with Aristotelian means.

The character of "scientifcity" (*Wissenschaftlichkeit*) is highly significant to Hegelian philosophy because the cognition of the absolute, the ultimate goal of philosophy as metascience, can be reached only through intensive conceptual work. Therefore, as we shall see, Hegel deliberately chooses for himself the project of making philosophy more "scientific" (*wissenschaftlich*).

For now, we ask ourselves one more question about Hegel's concept of science: does Hegel believe that the scientific cognition of the absolute have anything to do with god?

3.5.6 Science of god?

It seems that, immediately after Hegel's time, any use of the term god in philosophy of science became obsolete. God, who no longer counts as a hypothesis in the great works of natural philosophy, at least since the High Renaissance, had disappeared from philosophy of science long before Nietzsche announced the same in the general philosophy. As a corollary, theology does not count in the modern era as a proper science anymore. It is a fact that Hegel also does not explicitly put god on the top of his system, but rather the "truth" and "science" in the form of the "absolute spirit", "absolute idea", or simply "the absolute". Therefore, the question arises as to how Hegel understands the relation between god and science.

To be sure, since Hegel does not refrain from mentioning "god" in different contexts, there are several places in his texts where one can assume that by "god" Hegel means "the absolute". Thoughts of god serve as concrete elements in some of his philosophical inquiries. In *Science of Logic* he emphasizes that its content can be described as "*the exposition of God as he is in his eternal essence before the creation of nature and a finite spirit*".[125] In the *Encyclopaedia* he claims that science has a divine purpose: "To have cognition of God through reason is certainly the highest task of science".[126] Methodologically, god serves here as a title for "the truth". But the link between science and the cognition of god is not simply the theologifying of the project of science. Let us consider what Hegel thought of the science of theology.

To clarify his words on god, Hegel explains that he completely rejects the "abstract" categories of *Verstand*-theology, those which are mirrored in

[125] Hegel, 2010, p. 29; 5/44.
[126] Hegel, 1991, p. 74; 8/104. This we learn from the addition of the students of Hegel.

the “dead”, fixed dogmas concerning god. Such categories are used in the popular views of a given “religion”. Hegel prefers what he considers as the scientific *Vernunft*-theology which is based on theoretical reasoning and conceptual analysis. Insofar as “god” is only used as one of the many familiar names for “the absolute”, along with “the holy”, “the good”, “the sublime” etc., Hegel’s interpretation of the mission of science ought not to be falsely read as a romantic theologification, a view that is also alien to the mainstream of post-Hegelian philosophy of science. Instead, Hegel attempts to reestablish contact with the tradition that goes from Aristotle through Spinoza and holds that the sense of science is to be able to come, at the end of reasonable deliberation, to a demystified proper concept of god. The core notion of this tradition is methodological and points out that we, who set the question of knowledge, still do not know and are still in search, unlike divine knowledge, which already and always knows itself, and hence knows what knowing is.

Hegel does not think in this issue like Kant, who believes that the spirit that knows everything spontaneously, without mediation and per intuition, is the divine supermind which is superior to the human spirit that knows per mediation. Kant calls the human spirit “discursive” and regards it as lower. For Hegel, the fact that in order to know anything at all one needs certain conceptual structures as mediation is not a deficiency. He does not think that the discursive mind is insufficient for the sake of full cognition. To come to know god out of reason is possible. Such cognition only presents us with a principal problem if god is presupposed as the inconceivable subject or even as the epitome of the inconceivable *per se*. In the process of knowledge, one moves from the conceivable to the still-inconceivable, from the known to the less known. For the same reason, Anselm of Canterbury entitles his extraordinary “Discourse” known as *Proslogion* with the words “faith seeking understanding” (*fides quaerens*

intellectum). The mere belief, even if it already exists, must intrinsically look for the reasons for its existence. The basic principle of the traditional philosophical god is to embody the possibility of an *intellectus*, a form of knowledge, which can be the object of its own knowledge, *ens intelligibile*, and at the same time the *ens intelligens*, the knower. In this manner, the *Geist* is the cognitive reason of its own cognition, a form of *causa sui*.

For reasons that are easy to understand, the lofty concepts of "the absolute" and "world spirit", which play a crucial role in Hegel's philosophy of science, cause uneasiness, so that it is possible that Hegel would not have used them today,[127] or that he would have reconstructed his thoughts in contemporary language. Such concepts, which are not in common use in everyday discourse, are in a certain sense "metaphors",[128] insofar as the reflective language is sometimes figurative. For Hegel, the concepts of subject, object and absolute are kinds of titles, which are located on the same level, since subject and object constitute a relation, and the absolute is precisely the overcoming of this relation. The absolute is the completed melting of world and spirit in each other, their mixing until they become one: world and spirit in macro, object and consciousness in micro. Together they form one concept: worldspirit with object-consciousness.

Now that some of the main features of Hegel's conception of science have been presented, more light can be shed on the issue by observing the way Hegel deals with one of the fundamental problems in philosophy of science: the problem of beginning in science.

[127] As Welsch argues (2003, p. 48).
[128] Ibid.

3.6 How to begin in science?

While performing a self-reflection, Hegel addresses right at the beginning of his system of science, and later of the logic, the problem of how to correctly begin in science. This problem results from the paradox of beginning in knowledge: if the truthfulness of the beginning remains unproven, then such knowledge is not fully justified, and hence it is unreliable, and if further efforts are made to prove the truthfulness of the beginning, then one actually begins somewhere 'before' the real beginning, and so we arrive again at the question of where exactly to begin. The last case leads to a vicious circle or an infinite regress. The problem of the good and persuasive beginning in systematical science involves thus the question about the best first principle from which all derivations should logically follow. What is at stake here is the choice of the adequate self-justifying *logical prius*. Hegel's treatment of the problem of beginning aims at challenging two basic skeptical positions: firstly, the ancient school of Pyrrhonism, which promotes the suspension of judgment about any belief due to the problem of finding an appropriate criterion of truth,[129] and secondly, Kantian negative epistemology, which dismisses the possibility of knowledge only in the noumenal areas that are not verifiable by sensual experience.

The strategy of Hegel's solution is to begin with the maximum "immediate" entity (*das Unmittelbare*), which is the least conceptualized element, and to justify this choice upon the progress of the work. In concrete terms, this means to begin in phenomenology with the basic "sense-certainty" of "natural consciousness" and in logic with the

[129] This school of skepticism was founded by Phyrro of Elis in the fourth century BCE and is best known to us from Sextus Empiricus' book *Outlines of Pyrrhonism* from the late second century CE. Hegel deals with this school of thought in details in his *Lectures on the History of Philosophy*.

undetermined “pure being” that is also “nothing”. In any case, Hegel explicitly rejects the beginning with “the absolute”, like in Fichte’s and Schelling’s systems. Instead, he begins each time with the maximal non-true, which is the most distant point from the absolute, and finishes with the most true, the absolute, while the end of the system is the same point of the beginning, only more explicit and unfolded. This solution forms an immanent spiral-circular connection between the beginning and the end of the system.

The concrete suggestions that Hegel makes are *not* to begin in science (1) with fear of failure, (2) with presuppositions about the truth and (3) with arrogance, but rather by using the scientific guide of others. Deliberations on these suggestions shall be presented in the following.

3.6.1 No fear

The “Introduction” to Hegel’s metascientific project in his *Phenomenology of Spirit* begins with a thought on how *not* to begin in science: not to begin with “fear” (*Furcht*) of “error” or “mistake” (*Irrtum*), because it breeds the fear of the impossibility to know, which involves, in turn, the fear of truth. *Prima facie*, this warning can be read as a kind of psychological recommendation based on Hegel’s diagnosis that the pre-scientific personality is characterized by a type of mistake phobia or a failure phobia, so to speak, *atychiphobia*, in this case: a non-pathological form of atychiphobia in the face of scientific activity. On this reading, Hegel’s phenomenological disclosure of problematic mental structures can be interpreted as some advanced ‘cognitive therapy’. However, in the framework of philosophy of science, this recommendation causes astonishment, especially because Hegel insists on the non-psychologistic

character of his work. Since Hegel's use of the term fear in this context may appear to be vague, I shall try to clarify it a bit more.

Before Hegel mentions "science" for the first time in the "Introduction", namely in the second paragraph, he begins with a critical presentation of the epistemological argument claimed by the skeptical "natural view" (*natürliche Vorstellung*). The latter acknowledges the impossibility of "recognizing" (*Erkennen*) the truth in philosophy, i.e. "the absolute essence" (*das absolute Wesen*) or "that which is in itself" (*dasjenige, was an sich ist)*. In this paragraph, Hegel still does not use the term "science" (*Wissenschaft*), but only "recognizing" (*Erkennen*) and "cognition" (*Erkenntnis*). This terminology is significant, because it refers to the terms of the Kantian *Erkenntnisphilosophie*, but it repudiates it, insofar as it argues that the very existence of the transindividual institution of science is exactly the proof of the possibility of recognizing concrete universals in science. Science, and not the merely subjectively justified knowledge of particulars, is capable of recognizing that which is considered by us each time as the truth. Following this thought, Hegel sets himself the following question: what are the problems of the so-called "natural consciousness" that cause her fear of dwelling with science?

Hegel argues that fundamental truth-skepticism fears the beginning in science because it believes in the need to come to agreement on the natural limits of cognition before the act of recognizing itself. It seems that we would otherwise have to admit that all our knowledge-claims about the world are based only on our *own* conventions and our *pragmatic* decisions of how to make plausible assertions that we ought to understand. The beginner's fear, understandably not wanting to jump right in at the deep end, is paralyzing, because if we cannot know anything for sure, it would seem better not to start at all. The epistemological argument of this skeptical beginner goes like this: there are two modes of cognition, an

active one, cognition as a "work tool" (*Werkzeug*), and a passive one, as a "medium" (*Medium*), but both are imperfect because both cause alterations in the object they aim to reach, so that they do not reach the absolute *as it is*. Hegel does not name specific philosophers, but one is reminded of Aristotle who also dwells non-skeptically in his book *On the Soul* on the active and passive aspects of cognition reached by the thinking soul.[130] Yet, the explicit reference to the problem of the *Erkennen* of the in-itself (*Ansich*) is clearly directed to the Kantian tradition of *Erkenntnistheorie*, because it is an epistemology that is at the same time essentially *Erkenntniskritik*.[131] Starting his own scientific project, Hegel underlines the absurdity of both modes of cognition, arguing that the very declaration of the need for *Erkenntniskritik* causes serious and enduring damage to science in the form of "mistrust" (*Mißtrauen*). This pre-understanding, that before one begins with science one should have a basic trust in the ability of science to know anything at all, can be seen as one of Hegel's improved 'enlightened' thoughts: a kind of 'scientism', but a non-naturalistic form of 'continental scientism'.

Hegelian 'scientism' is a passionate attack on the *eidos*-skeptical and *logos*-skeptical foundation of the empiricist Enlightenment. Hegel gives an alternative phenomenological interpretation to an old problem: empiricist mistrust in science is caused by "worrying" (*Besorgnis*) about making a "mistake" (*Irrtum*), a worry that turns to "fear" (*Furcht*) and which appears exactly because one thinks one has to choose only between the two mentioned imperfect cognition modes. Hegel hints at a logical fallacy in the above-mentioned skeptical argument, namely the 'false dilemma': the contrasting of two limited and exclusive alternatives gives the impression

[130] Aristoteles, *De anima*, III 4, 429 b29 – 430 a2.
[131] Hegel aims at a similar criticism also in *Faith and Knowledge*, as shown in 3.2.

of a necessary conceptual bifurcation. In the third paragraph, Hegel brings to the fore the figure of science, exactly as that which is a factual opposition to the vain negative critique of cognition. Such opposition dares to declare that we can indeed "recognize the absolute". The assumption of the division between cognition and the absolute is the very "inability of science" (*Unvermögen der Wissenschaft*) to set itself free from the mere "presuppositions of such relations" (*Voraussetzung solcher Verhältnisse*) and from the required "effort of science" (*Mühe der Wissenschaft*). The fear of a science that can know "the absolute" is caused by a crippling skepticism which tends to be, so we almost read in Hegel, *anti-science*. Being ironic and employing the logic of self-application, he contends that this fear must be faced with fear in order to be overcome. The solution of *fear of fear* obviously mirrors the logical form of the *negation of negation*.

The fact that Hegel turns to a psychological-intentional phenomenon such as *fear* to explain an epistemological dilemma is still not without question. To be sure, there is an old debate about the relation between knowledge and fear: whereas the Enlightenment claims that the less you know, the more you fear, for ignorance breeds fear, just as fear breeds hate, there is the old belief that the more you know, the more you fear. In this issue, Hegel seems to follow the basic 'enlightened' ideals regarding the necessary public distribution of scientific knowledge. In support of Hegel's quasi psychological argument, one can claim that the phenomenon of fear does not only belong to psychological discourse. Hegel's use of the term fear should not raise disciplinary difficulties, as it does not perform a principal category mistake. Hegel argues here against security fanaticism that intentionally breeds fear in order to feel some kind of imagined safety. Phenomenologically, fear is an intentional phenomenon that may involve real threatening objects where the fright is justified, or only potential objects in which case the angst is irrational. Nevertheless, Merold Westphal

rightly apprehends that: “A kind of psychoanalysis seems to be called for, but Hegel offers nothing of the kind in his Introduction”.[132] Unfortunately, neither does Westphal himself provide us with any kind of psychoanalysis, while taking the issue of “fear” in Hegel to be the unresolved question of the whole introduction: “What we do not learn from the introduction is how seriously we are to take [...] Hegel’s use of these terms as fear, anxiety, despair, violence and death”.[133] On this reading, Hegel’s choice sounds mysterious, only because he does not dwell further on psychoanalysis.

However, positively formulated, Hegel raises the problem of worrying because he wants to prepare his claim that science, in its ideal form, is exactly that which is capable of overcoming such skeptical worries and becoming immune to them. Hegel believes that true knowledge can seriously remove some fears and dualisms. He recognizes that the question of fear is relevant to the epistemological question, insofar as he argues that the main consequence of the fear of failure is the fear of knowing, *gnosiophobia*, which in turn develops into the fear of truth, *alethophobia*. The real existence of good science, i.e. the factuality of true knowledge, ought to be contrasted with archaic antiscientific fear.

The gnosiophobia and alethophobia, as the phenomena of fear in the view of scientific activities, are not to be treated as just some particular emotions of individuals or as psychological phenomena, because their significance in the epistemological context is that they attain the form of a “doubt” (*Zweifel*). Hegel interprets this doubt as a form of “two-foldness” (*Zwei-fel*), a dualism that results from the unreasoned conception of cognition as *diametrically contrasted* to the absolute. The identity between cognition and the absolute is one of Hegel’s challenges, because not to

[132] Westphal, M., 1979, p. 7.
[133] Ibid., p. 14.

allow for such identity, which is actually the goal of scientific demonstration, is for him the most significant *petitio principii* in Kantian epistemology: its skeptical circular reasoning only begs the question concerning the cognoscibility of the absolute. In virtue of the above said, Hegel's anti-Kantian argument reveals the alliance and interconnection between the *petitio principii* of the naturalistic view of science and the artificial finite-making of cognitive capacities, like in the Quinean animalization of the thinking subject.

In phenomenological terms, Hegel interprets the situation of having fear due to not-knowing as a situation in which we confront the unknown as a mere appearance of something whose essence we do not fully recognize. The fear in view of an unexplained phenomenon that was not experienced before leads to making presuppositions and prejudices, sticking to them and, above all, believing in them. Hegel rejects that the beginning must be foundationalist, i.e. must be based on presuppositions. The next section scrutinizes Hegel's relation to epistemological foundationalism.

3.6.1 Antifoundationalism

The role Hegel ascribes to "presuppositions" (*Voraussetzungen*) in the beginning of science is a subject for debate: what is at stake is the existence of foundationalism or antifoundationalism in his philosophy of science.[134] On the basis of Hegel's words, it seems easy to assess that he advocates foundationalism in *Science of Logic*, for he himself states that

[134] Among others see: Joseph Flay, "Pragmatic Presuppositions and the Dialectics of Hegel's 'Phenomenology'" (1982); Rockmore, "Foundationalism and Hegelian Logic" (1989); Rosen, M., *Problems of the Hegelian Dialectic*: *Dialectic reconstructed as a Logic of Human Reality* (1992); Maker, "Hegel's 'Phenomenology' as Introduction to Science" (1993) and *Philosophy without Foundations: Rethinking Hegel* (1994); Houlgate, "Hegel's Critique of Foundationalism in the 'Doctrine of Essence'" (1999).

Phenomenology of Spirit is set to be the "presupposition" for understanding "pure science" in *Science of Logic*, whereas he is a non-foundationalist or even anti-foundationalist in *Phenomenology of Spirit*, going against presupposing the meaning of used concepts. In this work, Hegel analyzes preexisting presuppositions regarding knowledge-claims and does not seem to recommend any specific presuppositions for the beginning.

In spite of this evidential interpretative situation, a challenging reader could contend that Hegel is *de facto* a foundationalist in *Phenomenology of Spirit* because he seems to presuppose something like "natural consciousness" or common sense, along with all its natural opinions. However, that with which Hegel begins his work is the *topic* of "consciousness", the *main theme* of this work, and not merely a presupposition or an assumption. In accord with this, the same challenging reader would probably notice that in *Science of Logic* Hegel can be read as a non-foundationalist, who begins with the most undetermined category of mere "pure being" precisely because he does *not* intend to start with any significant presuppositions or "determinations", except perhaps his own old work. In any case, as mentioned before, Hegel does not begin with the absolute, but with the non-true, while finishing with the true.

Against this background, a coherent non-foundationalist reading would combine the two positions and interpret Hegel as taking efforts to begin each time with "presuppositionlessness" (*Voraussetzungslosigkeit*). One has to be careful, though, not to obscure or mystify this type of ideal. In reality, what Hegel suggests is legitimate: to begin his argument each time without the paradoxical need to prove the beginning right at the beginning. What he offers as an understandable beginning is "the immediate" *per se*, over whose existence one generally agrees without further proof, whether it be the common consciousness or the unspecified being.

Hegelian methodology contains thus an argument against epistemological foundationalism in science. Such foundationalism holds that in order to tell science from non-science, the theory of science needs a "presupposition" (*Voraussetzung*) or an "axiom" (*Grundsatz*)[135] that could serve as an external grounding in the form of a truth criterion. Such criteria ought to assure that the theory does not generate any logical contradiction, and among them are the principles of *falsifiability*, *testability*, *reproducibility*, *evidence*, *defeasibility* or *consistency*, all which presuppose however, that principally, the truth itself cannot be otherwise logically proven or somehow revealed. Such a criterion obviously makes sure that the theory is parsimonious and economical in the number of hypothetical entities and assumptions, and as elegant as Ockham's razor. "Plurality is never to be posited without necessity" (*numquam ponenda est pluralitas sine necessitate*). However, Hegel's phenomenological investigation of knowledge of knowledge shows that such criteria should actually be regarded as internal to consciousness and as given to it by none other than itself. All the various given theories of truth are themselves questionable forms of consciousness. The Hegelian theory of theory, so understood, underlies thus the most parsimonious and economical criterion, namely consciousness itself, yet its wholeness. In this respect Hegel's criterion is rigid: it demands that the beginning of the investigation must take place with themes and ideas that already contain conceptual distinctions, and not only with theses or claims.

Since Hegel's strategy is that the beginning in a scientific investigation does not have to be the whole truth, for it cannot be, his solution to the paradox of beginning was designated as "philosophy without

[135] Like in Fichte's *Wissenschaftslehre* (1972, p. 34).

presuppositions",[136] in which we must consciously and undogmatically start "with the non-true".[137] Phenomenology begins with the analysis of sensuality, as the least true shape of spirit, because its truth applies only to the "pure being", so that it knows only that something *is*. The sense-certainty of the sensual knowledge, as only knowing-of, has the poorest truth and is thus the paradigm for the most inadequate description of absolute knowledge. Hegel is careful to make this beginning coincide with that in the *Logic*, where he speaks of the most abstract notion of being, the "pure being", which is far from being concrete in any way. The beginning, which is still not secured or safe, has to exhibit the differences between what there is and what there is not and to manifest how this distinction is implemented in reality. The truth has to authenticate itself gradually during the work, so that at the end we reach the complete justification of the beginning. In *Encyclopaedia Logic* Hegel is even explicit about the need to begin with the error. He claims that one has to begin with the unverified, because "the truth must, precisely as such, *validate* itself".[138] Another reason for such beginning is the following: "when what is in question is cognition in the mode of thinking, we cannot begin with the truth, because truth, when it forms the beginning, rests on bald assurance, whereas the truth that is thought has to prove itself to be truth at the bar of thinking".[139] Hegel's response to the problem of beginning is therefore to choose for his works a multistate type of logic based on evolving circular reasoning.

The end of the system, however, must meet the beginning again. Hegel articulates this in *Phenomenology of Spirit* when he argues that the truth "is the process of its own becoming, the circle that presupposes its end as its

[136] Rosen, 1992, p. 34.
[137] Cf. ibid., p. 37.
[138] Hegel, 1991, p. 134; 8/180.
[139] Ibid., pp. 234f; 8/306.

goal, having its end also as its beginning; and only by being worked out to its end, is it actual".[140] The genuine form of this movement "is the circle that returns into itself, the circle that presupposes its beginning and reaches it only at the end".[141] At the end of the *Phenomenology of Spirit*, when spirit knows itself for the first time "immediately", the spirit itself becomes "the certainty of immediacy, or sense-consciousness — the beginning from which we started".[142] Eventually, everything natural, just as intellectual, can be thought as self-realization of the absolute idea. Everything is thus a presupposition for the absolute and the absolute is the presupposition for everything. Hegel's inquiry into "the absolute" aims at a speculative metalogic of material conditions, insofar as it aims at recognizing the absolute in its unconditionedness. To be sure, Hegel is generally against unexplained preconditions. Still, it is important not to forget that, when Hegel advocates truth without presuppositions, he does not mean that thinking itself is not engaged in any kind of presuppositions, but rather that he intends to explicate during the work the most important recurring presuppositions which are relevant for the formation of concepts.

To begin without presuppositions means *in concreto* to deal with conceptual explications in order to perform analysis of meaning. For this reason, Hegel demands that the meaning of key concepts like "objective", "subjective", or "absolute" be explicated at some point, and not taken for granted or presumed as already known. Yet, this does not mean that these words should be defined and fixed for good at the beginning like *technical terms*, but rather that the whole task of a philosophical work is to expose relations between the logical forms and the semantic development of basic concepts, i.e. "to give the concept". When one uses Ism-words in

[140] Hegel, 1977, p. 10; 3/23.
[141] Ibid.. p. 488; 3/585.
[142] Ibid.. p. 491; 3/589f.

philosophical treatises and lets them appear as a necessary scientific fact without any explanation, one reduces the language to a set of technical terms. Instead of transcending the word into the earnestness of a concept, the Ism actually strangles the living content and leaves behind an abstract dead object. The logical content of merely imagined thoughts (*Vorstellung*) and unauthentic bloomy figures of speech (*Redensarten*) is vacuous, as they contain no *logos*. Unexplained linguistic expressions are attacked by Hegel as only "an empty appearance of knowledge" (*eine leere Erscheinung des Wissens*) that disappears in the face of the "arising science" (*auftretende Wissenschaft*), which in turn disappears in the face of the true science as a whole.

Hegel's analysis of presuppositions, his "logic of presuppositions",[143] can actually be read as a critique of naive realism. Such critique exposes the "unintelligibility"[144] of each given real object, its intrinsic misunderstanding and self-contradiction. The paradox of naive realism is that it *presupposes* the existence of the external world on the basis of seeing and at the same time sees the same external world exactly as the perfect opposite of the world of the mind and the faculty of cognition. Instead of really proving the realist claim, realism eliminates a priori the existence of anything which is not real, of the unreal, while not questioning the received metaphysical terminology that is at work in this thinking. Such conceptual schemes serve in the positive sciences as obscuring hypothetical assumptions about undemonstrated entities. The next section will deal with Hegel's relation to realism.

Finally, it is also possible to read Hegel first as a foundationalist and then as a non-foundationalist, because the principle of the *Phenomenology*

[143] Flay, 1982, p. 23. Flay's interpretation is influenced by Robert Stalnaker's essay "Pragmatic Presuppositions" (1975).
[144] Ibid.

of Spirit, as William Maker argues, is a dialectical hybrid of these two positions: to be a "presupposition for science without presuppositions".[145] As an introduction to *Science of Logic*, *Phenomenology of Spirit* is a methodological preparation in the form of a "self-sublating mediation".[146] Maker rightly interprets the result of *Phenomenology of Spirit*, "the absolute knowledge", as radical-negative insofar as Hegel sublates all presuppositions in the form of predeterminations and preconditions. The *Phenomenology of Spirit* shows in effect how autonomic science should *not* begin. Maker's dialectical move is the following:

> "Thus the Phenomenology of Spirit is not a presupposition for the science because it establishes no principle, method or ground for the science, and yet it is presupposition for the science because it shows why such a science cannot have any such external grounding".[147]

Maker's diagnosis is that a major part of contemporary philosophy holds a relativistic approach against any presuppositions,[148] namely a kind of "antifoundationalism" that upholds the "context of contextuality" out of which no one can allegedly break away.[149] Hegel's philosophy is said to advocate antifoundationalism too,[150] but in a more radical way, for it "does not embrace an uncritical relativism"[151] or entail loss of objectivity. The crucial point is that, in contrast to the common versions of contemporary

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[145] Maker, 1993, p. 91.
[146] Ibid.
[147] Ibid., p. 87.
[148] Cf. Maker, 1994, p. 2.
[149] Maker himself rather advocates "postfoundationalism" that works against relativism by "relativizing the relativism" (1994, p. 1), even though he admits that the activity of knowledge requires the unconditioned and ungrounded (ibid., p. 5).
[150] Ibid., p. 16.
[151] Ibid., p. 108.

anti-foundationalism, the *Phenomenology of Spirit* criticizes foundationalism in a systematic and immanent manner.

Besides dealing with the problems of fear and presuppositions, Hegel takes pains to clarify the question of how to reach the scientific point of view from outside science, while using the metaphor of the ladder, which shall be examined in the next section.

3.6.3 The ladder

What is the first step into science? As Hegel locates science in a "higher" place, the question is rather how to climb up to science. Hegel acknowledges that the demand of the individual for a "ladder" (*Leiter*)[152] is legitimate. The metaphor of the ladder became famous through Wittgenstein whose reader must "throw away the ladder, after he has climbed up on it";[153] that is, after he has understood the "elucidatory" sentences of Wittgenstein. What Hegel suggests as a ladder to "pure science", to his *Science of Logic*, is his *Phenomenology of Spirit*. But who exactly needs the ladder?

Hegel devotes the ladder to the beginner in science, whom he describes as the inexperienced natural consciousness who approaches science without knowing the reason. Such beginners find themselves attempting "to walk on their head" oddly and with unnecessary "violence". This helpless consciousness takes everything in science and philosophy to be an "inversion of truth" (*das Verkehrte der Wahrheit*)[154] or even "perversion of

[152] Hegel, 1977, p. 14; 3/29.
[153] Cf. *Tractatus Logico-Philosophicus*c (6.54): "My propositions are elucidatory in this way: he who understands me finally recognizes them as senseless, when he has climbed out through them, on them, over them. (He must so to speak throw away the ladder, after he has climbed up on it.)" (Wittgenstein, 2010, p. 90).
[154] Hegel, 1977, p. 15 (Miller); 3/30.

truth".[155] But what kind of "ladder" can science practically offer? Hegel took this question so seriously that his reply became one of the most complicated works in philosophy.

Hegel uses the word "ladder" (*die Leiter*) in a way that hints at the meaning of the similar word "guide" or "leader" (*der Leiter*). This "ladder" is the guide that shows the way to a higher destination: the scientific system of thought. The normal expectation from a guide book is to contain a set of instructions, including suggestions, tips, demonstrations, simulations, and perhaps illustrations. But none of this is to be found in Hegel, at least at first glance. Performatively, Hegel wonders about the scientificity of such a guide. In fact, what Hegel does is to sharpen the problem of designing a guide by revealing the paradox of demanding that the way to science, the ladder itself, be scientific too. This rigorous demanding seems to be logically impossible: if the contents of science permanently change in history, a stable and reliable guide would seem to be out of reach and even principally unreachable. Yet, at the time of the *Phenomenology of Spirit*, Hegel had certainly come to believe that it is possible to bestow upon the beginners a thoroughly scientific guide to science, viz. a generic-speculative science of science. In a certain respect, and in the broad sense of the term phenomenology, each generation of self-conscious thinkers writes each time a kind of new phenomenology of spirit.

Hegel's response to the problem of the first scientific step is a methodological one and consists in his phenomenological "path" to the science of logic through a conceptual inquiry into the existing formations of consciousness, the various rungs of the ladder. This philosophical act of offering a guide to inexperienced beginners is designated by him as the "science of the experience of consciousness". This metascience brings the

[155] Hegel, 2003, p. 14 (Baillie); 3/30.

beginners in science to the "science of the spirit" through "education" (*Bildung*) in the wide sense of the word, i.e. the development of their intellectual abilities. To a certain extent, Hegel offers an external guide that is at the same time an internal guide, as his Post-Kantian argument rather advocates the ideal of the balance between autonomy and heteronomy: we should not expect to base all our scientific knowledge only on ourselves and to produce it all alone, while ignoring the relevant work of others. Such totalitarian autonomy in epistemology can lead to narcissistic vanity and solipsism. Hegel's way to science is not a project based on pure reason alone or on armchair rationality, because if one wants to be in science 'at home', one has to accept that one is not and cannot be there home alone. Hegel here tries to make an intersubjective case, while overcoming the false argument from authority which limits beginners in science in the name of *argumentum ad verecundiam*, for experts always seem to know everything better. At the same time, for the honest beginner in science, it seems that, due to the restricting *argumentum ab auctoritate*, we can never principally appeal to the authority of others and hence we need to do all the thinking work alone in order to get it properly done. But Hegel acknowledges that this kind of pseudo-autonomy can become a misleading dangerous thought, an autistic and infantile one.

In the final analysis, Hegel's positive conception of promoting a foreign scientific guide among beginners is in line with his civic trust, not faith, in the teachability and learnability of scientific and philosophical knowledge. Such a guide needs to contain critical analysis of traditions of metaknowledge. As mentioned before, Hegel's conception of scientific guide also goes hand in hand with his critique of naive realism and his own version of conceptual realism. The next section deals thus with Hegel's reaction to the challenge of realism.

3.7 On Hegel's realism

Although Hegel holds that "[e]very philosophy is essentially idealism or at least has idealism for its principle",[156] his theory of knowledge can also be described as "epistemological realism",[157] for it intentionally goes beyond the one-sided views of *pure idealism* or *pure realism*. "Epistemological realism" means that we can know something about things that exist regardless of our consciousness, "regardless of what we think, say, or believe about them".[158] Hegel gives utterance to this when he argues that "[p]ure science thus presupposes the liberation from the opposition of consciousness" and that "[t]his objective thinking is thus the *content* of pure science".[159] Yet, one has to be careful not to use the term "realism" in a merely technical manner, for the question is: realism about what?

Mere direct realism about the *res* as a finite "thing" or about finitude in general is tautological and would not convince Hegel, who rather upholds indirect realism about concepts and ideas. He does this on the condition that such realism simultaneously entails a complementary version of idealism about the *res* that acknowledges the "ideality" of things. Echoing Fichte's early *Wissenschaftslehre* (1794/5), Hegel already works out – in *Jenaer Systementwürfe I* (1803/4) – a complex mediation between idealism and realism with the goal of overcoming the "unreasonable controversy"[160] between total idealism and total realism. Indeed, Hegel's critical version can be designated with Fichte's own terms as *ideal-realism*, or conversely as *real-idealism*. Fichte coined the terms *Real-Idealismus* and *Ideal-*

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[156] Hegel, 2010, p. 124; 5/172.
[157] Westphal, 2003, p. 2; Tesla, 2013, p. 23.
[158] Westphal, 2003, p. 2.
[159] Hegel, 2010, p. 29; 5/43.
[160] Hegel, *Gesammelte Werke 6*, ed. Düsing K. and Kimmerle H (Hamburg: Felix Meiner, 1975) p. 229.

Realismus for his approach in *Grundlage der gesamten Wissenschaftslehre* (1794).[161] Brandom calls this Hegelian approach "conceptual realism".[162] Hegel repudiates externalist forms of direct realism with the same argument he criticizes the Berkeleyan and Kantian "subjective idealism": the perceptual experience is not absolutely mind-independent. Such imagined mind-independence is a false conception of the absolute. The absolute is not a realm of mindlessness resulting from an imagined plenary division between a presumed mind-poor world and a world-grasping agent.

As a solution to the problem of realism, Hegel offers to conceive of the perceptual experience itself as a shape of consciousness and hence as internally accessible to the consciousness, as intrinsically intelligible. The finite existence of a "thing" exists only as a single moment in the context of the divisive work of the intellectual "understanding" (*Verstand*), and not independent of it. Hegel claims that the mature "developed" (*gebildet*) consciousness, which can also be understood as educated, ought not to relate to its objectifications permanently as "real" or as "pure things", but rather as what they are: logically interconnected phenomena of self-consciousness in the form of a set of mental representations. The departure point of *Phenomenology of Spirit* is thus the analysis of the inherent relations between the phenomena of consciousness and the various states of objecthood. The natural "immature" (*ungebildet*) consciousness unknowingly divides a part from itself but treats it as a foreign "object" (*Gegenstand*) essentially different from itself. If consciousness seeks to reach true statements about the world and meet "the absolute", it ought to

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[161] Fichte, 1997, p. 198. Hegel sympathetically reviewed in 1831 in *Jahrbüche für wissenschaftliche Kritik* the work of Albert Leopold Julius Ohlert titled *Der Idealrealismus. Erster Teil. Der Idealrealismus als Metaphysik in die Stelle des Idealismus und Realismus gesetzt* (Neustadt, 1830).

[162] In a lecture at LMU Munich "Conceptual Realism and the Semantic Possibility of Knowledge" (2011), published in Brandom's website (http://www.pitt.edu/~rbrandom/).

learn to treat the object it experiences as a mind-accessible subject in the form of a set of mental representations, i.e. as if the object were a graspable conceptual scheme or an internally accessible self-conscious being. To become fully self-conscious, as Hegel put it, means to also grasp substances as subjects. This fundamental observation is constitutive of the Hegelian immanent critique of pure realism.

Hegel's non-psychological conception of self-consciousness is crucial for the understanding of his realism about knowledge of knowledge, which is not supposed to establish the counter-discourse of pure "idealism" or to confuse the ideal with the real, as the "uneducated thought" (*ungebildetes Denken*)[163] does. The "real" is only that which a "thing" is. Therefore, as a *logical* category of thinking and hence of being, it is rather an abstract and determination-poor category. To say about something that it is "thing" is not to say a lot about its essence. The *ideal*, like the *eidos*, is a more concrete and precise determination of being as self-thinking thought.

Hegel's version of *real-idealism* assumes that, in the pith of the consciousness-objects, there is a kind of conceptual structure that makes it possible for human beings to refer to them intelligibly. In this view, there are no real inner-worldly objects that are free from such intrinsic conceptual structures. The sheer independence of the manifold things in the human world, i.e. their virtual self-reliance and their seemingly autonomic subsistence, is part of the illusion of the "given" that every single person experiences while confronting the shared world. In reality, every object of any kind is somehow determined so that we can at least speak of it, say something about it. Mental objects disclose their own general forms of "determinateness" (*Bestimmtheit*), which is in turn an indication for *Begrifflichkeit* and for conceptual representability.

[163] Hegel, 2010, p. 119; 5/165.

However, Hegel does not simply hold a wild type of "linguistic idealism" à la Ian Hacking who claims that "only what is talked about exists; nothing has reality until it is spoken of, or written about".[164] Hegel's real "linguistic position", as Welsch put it,[165] claims that if the "being-in-itself of the things" (*Ansichsein der Dinge*) exists and is not supposed to be an empty thought, then such a being is not external to language, but rather determined through it and depends on it. The reference to the "thing in itself" cannot be above or outside language, for no reference is wholly independent of language. The identity of such things-in-themselves is determined precisely by their negative relation to others; they exclude the possibility that there are forms that are at work in the things. Since language is, after all, the framework for every proposition, object, negation, relation and representation, referring to objects outside language also happens inside language. Thus, such eerie "in-itself" (*Ansich*) that is beyond any language is impossible *ex definitione*.

In spite of this, Hegel would not confirm that objective truth is relative to language, as Davidson does, nor does he believe that it is relative to the individual human being, as Putnam does.[166] In contrast, Hegel contends that thinking of objects does not consist in the subjectivist reduction according to which such mental objects are quasi only "our thoughts", when he argues in the *Encyclopaedia Logic* that "the true objectivity of thinking consists in this: that thoughts are not merely our thoughts, but at the same time the *In-itself* of things and of whatever else is objective".[167] The structures of thinking itself thus have qualities of objecthood as well.

[164] Hacking, 1975, p. 24.
[165] Welsch, 2003, p. 53.
[166] Cf. ibid., p. 60.
[167] Hegel, 1991, p. 83; 8/116.

Thinking *is* objective, insofar as it also intrinsically happens in the object and towards its inwardness.

Therefore, Brandom plausibly argues that Hegel is a "conceptual realist", one who sees the "objective world as already in conceptual shape, and hence graspable as such".[168] Conceptual realists also hold that truth is not a certain target, state or property, because the coherence of truth, just like the coherence of meaning, is not a final rigid state, like matter or a dead body. Truth is not about something one simply achieves one day, but rather a free self-movement. On this understanding, Hegel does not hold any classical theory of truth, neither correspondence-theory nor coherence-theory. Brandom reminds us that what is radical and interesting in Hegel's non-analytic concept of truth is that what matters is not the result of the process of truth, but the process itself.[169] The Hegelian "motor" of change means that in each concept there is a difference between truth and untruth that moves us to the next concept. Brandom rightly stresses that it is of course not the case that all is spirit, for there would then be no differences at all, just as it is also not the case that the Hegelian truth process is merely infinite. He interprets, however, Hegel's treatment of the principle of contradiction in a somewhat problematic way, for he calls it the endorsing of "materially incompatible commitments", whereas Hegel himself does not really endorses the incompatible commitments, but only presents them as the motor of conceptual change in science.

The last discussions have brought us a little bit closer to Hegel's concept of science. We began our approach towards Hegel's concept of science with what science is not, and continued with commenting on Hegel's words on science. We arrive now at the last section of this chapter

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[168] In "Hegel and Analytic Philosophy" (2015, p. 5), published on Brandom's website (http://www.pitt.edu/~rbrandom/).
[169] Cf. ibid., p. 12.

in which effort will be made to understand Hegel from the postmodern perspective of Kuhn's influential theory of science.

3.8 Hegel's possible response to Kuhn's concept of science

There is an ambiguity in the relation between Kuhn and Hegel. On the one hand, Kuhn's postmodernism can be seen as a decisive rejection of Hegel's modernism, his adherence to systematism and 'totalism'. But on the other hand, Kuhn seems to echo Hegelian themes insofar as he recognized the crucial role of the study of the history of science for the development of science and so epitomizes the *historical turn* within the Anglophone philosophy of science. Kuhn's approach became one of the acknowledged positions within contemporary philosophy of science, embodied in the university departments of Science Studies and History of Science. His theory of science in *The Structure of Scientific Revolutions* (1962) was co-responsible for the post-analytic turn in the analytic philosophy of science, because, roughly until Kuhn, the self-declared analytic tradition grasped the historicity of science as principally indifferent to science itself, so that this tradition believed it could cut itself off from the commitments to its continental history. Let us thus begin with a short presentation of what might count as the similarities between Hegel and Kuhn.

Firstly, Hegel would agree with Kuhn that science is a process that takes place in time, evolves and has a history that matters to its becoming and being. Hegel claims, for example, that the post-Aristotelian science of logic urgently needs further development. Kuhn's basic claim is that learning from previous scientific revolutions has an existential meaning insofar as the scientific discoveries alter our "conception of entities".[170]

[170] Kuhn, 1962, p. 7

This can be read as Kuhn's ontological thought. The reason why learning from the history of science is permanently relevant is this: "Out-of-date theories are not in principle unscientific because they have been discarded".[171] Outdated theories do have "historical integrity"[172] that consists in the fact that they were right at their time and so they are, to some extent, historically correct. At first glance, this thought seems to be quite Hegelian. However, whereas Kuhn criticizes the "unhistorical stereotype drawn from science texts"[173] in contemporary textbooks which dogmatically show results and methods devoid of their historical contexts, Hegel condemns the "historical" way of speaking in philosophy and science, and prefers the logical-conceptual structure. He explicitly refrains from designating his method of inquiry as "historical".

Furthermore, Hegel might agree with Kuhn about the rejection of the linear conceptions of progress, i.e. of "development-by-accumulation", "cumulative process" or "accretion".[174] Yet, as we have shown, Hegel does have in mind a kind of quantitative cumulative process. When he describes the progress of thinking in *Science of Logic*, he means the permanent further-determination of every form of being, the process of its conceptual evolution from an undetermined "pure being" to the fully determined "absolute idea".

Kuhn, who did not agree much with Hegel and regarded him as "obscure",[175] wanted to see himself as "a Kantian with moveable categories", even though Kant, unlike Kuhn, was pretty much anti-

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[171] Ibid., pp. 2f.
[172] Ibid., p. 5.
[173] Ibid., p. 1.
[174] Ibid., p. 2.
[175] Nickles, T., "Scientific Revolutions", in *The Stanford Encyclopedia of Philosophy*, ed. E.N. Zalta (www.plato.stanford.edu/archives/sum2014/entries/scientific-revolutions, 2014).

historicist about science. In fact, Kuhn has developed a Darwinist-naturalistic theory of science that differs much from that of Hegel or even Kant. In the following, four main differences between Hegel and Kuhn concerning their conception of science shall be presented.

The first difference between Kuhn and Hegel concerns the definition of science. For Kuhn, science is the process of discovering *nature*. Hegel would agree that science is a process, yet science is for him not only the discovering of nature, but also the discovering of the products of human spirit, like art, religion and state, *as* products of the spirit. Even when the spirit discovers nature, it discovers the otherness of spirit, and hence still something that stands in some relation to spirit. Above all, science is not only about discovering the nature of nature, but also about discovering the nature of spirit, namely spirit's self-knowledge. Hegel thus emphasizes the mode of *recognition* more than that of discovery. From this essential difference between Kuhn's and Hegel's definition we come to one of its crucial consequences: the status of concepts in science.

The second central difference between Hegel and Kuhn turns on the determination of the logical relations between scientific concepts. Kuhn's emphasis on the significance of the altering basic categories of the "paradigms" during scientific discoveries may bring to mind Hegel's thought about the dynamic character of scientific concepts. Like Hegel, Kuhn thinks that the goal of learning history of science is to understand the emergence and operationality of central "paradigms", the fundamental conceptual categories in "normal science". Such understanding enables a revolutionary awareness for potential modifications of contemporary paradigms. Revolutions happen in science when scientific results show inadequacies and are wrong or incorrect. Therefore, Kuhn, again, like Hegel, defines "scientific discovery" in relation to "conceptual categories" and so in a way that resembles the Hegelian sympathy with the logic of

concepts. Kuhn argues: “That awareness of anomaly opens a period in which conceptual categories are adjusted until the initially anomalous become the anticipated. At this point the discovery has been completed”.[176]

Notwithstanding, in stark contrast to Hegel, Kuhn declares that the interrelations between the paradigms cannot be sufficiently determined: “The normal-scientific tradition that emerges from a scientific revolution is not only incompatible but often actually incommensurable with that which has gone before”.[177] The reason for this gap is “the insufficiency of methodological directives”,[178] which leads, in turn, to a “continual competition between a number of distinct views of nature”. Kuhn famously designates these views as “incommensurable ways of seeing the world”.[179] His idea of incommensurability negates the conceptual derivability of one paradigm out of the other and hence any logical continuity. In this way, he raises the problem of the absence of logical scientific unity. He formulates the connections between paradigms mostly in a negative form: “incommensurable”, “incompatible”, “anomalous”.

Where Kuhn diagnoses anomaly and detects incommensurability, Hegel rather experiences the constructive motion of well-organized contradictions through “determined negations” and “mediations”. The “incommensurable ways of seeing the world” is the foundation of Kuhn’s infamous relativism, about which Quine not unjustly said that it is “epistemological nihilism” that tends “to belittle the role of evidence and to accentuate cultural

[176] Ibid., p. 64.
[177] Ibid., p. 103.
[178] Ibid., p. 3.
[179] Ibid., p. 4.

relativism".[180] Hegel would have apparently stamped Kuhn's theory of science as unscientific, since it led Kuhn to the skeptical conclusion that science is a process without any "permanent fixed scientific truth".[181] Kuhn's conclusion may sound for a moment like Hegel's idea of "moments of truth", but in effect Kuhn denies the very possibility of truth. In Hegelian terms, Kuhn understands his own theory of science as an "absolute negation" of the old anti-historicist analytical philosophy of science which he knew and which were valid at his time, but in fact, his emphasis on coming back to history of science is rather a "sublation" of his precedents and thus only a "determinate negation", which is partly commensurable with traditional historicist European theorists of sciences, like Karl Marx, Max Weber or Franz Boas.

(3) The third difference between Hegel and Kuhn turns on the goal of science. Whereas for Hegel the goal of science is defined as spirit's self-recognition, for Kuhn science is an uncontrolled progress "without a teleological goal".[182] The problem with the term "teleological goal" is that it is fairly tautological and claims the same thing twice over because *telos* means an *end* in the sense of a *purpose*, ergo, goal. The conjunction "teleological goal" could have been conceptually distinguished from any other goal, for example economical goal or political goal. But Kuhn, for whom *no goal* at all exists for science, not any specific goal, not a humanist one, and definitely not a goal that he could call *telos*, does not draw any such distinctions. Kuhn explains his founding in a Darwinist-like tactic that almost became a norm in contemporary philosophy of science: he

[180] Quine, 1969, p. 87. Quine counters that in spite of Kuhn's views, "epistemology still goes on" (ibid., p. 82), yet in the spirit of Wittgenstein and the Vienna Circle. The idea of the incommensurability of paradigms was also vehemently criticized by Imre Lakatos and John Watkins.
[181] Kuhn, 1962, p. 173.
[182] Ibid., p. 171.

maintains that there is a "natural selection" among the scientific paradigms, like in nature's evolutional processes. In Kuhn's interpretation of Darwin's evolution theory, natural selection is responsible for the emergence of a specialized organism without any goal set by the mind or god.[183] Analogously, the "natural selection" of paradigms within the process of science has no teleological goal set in advance by god or any other being, not even by nature. Kuhn is thus deeply rooted in the tradition of epistemological naturalism which tends to reanimalize the human being in various forms. The problem is that, if we decide that science principally does not have any purpose, we cannot justify any selection of the conceptual categories. This is the *petitio principii* in Kuhn's theory: there is no proof for this alleged purposelesness of science.

Against Kuhn's Darwinist epistemology one can claim that it is a form of "biologistic naturalism"[184] about concepts, and therefore a danger for "*methodisch aufgeklärte Wissenschaft*",[185] that is, for science that is fully conscious about its methodology and seeks to make wise use of it. Sufficient knowledge about methods makes science more critical because "the mere 'surviving' of contingently 'stronger' ideas does not show yet that they are reasonable".[186] A ripe philosophical method must be aware of the hazardous situation that some dominant traditions of knowledge, which are not better than others or necessarily in possession of the truth, enjoy overrepresentation and authority status.

(4) The last difference to be mentioned results from Kuhn's skeptical conception of the goalless science which leads him to deny the existence of

[183] Cf. ibid., pp. 171ff.
[184] Stekeler, 2014, p. 45.
[185] Ibid.
[186] Ibid: "*Das bloße 'Überleben' zufällig 'stärkerer' Ideen zeigt noch nicht, dass sie vernünftig sind*".

"one, objective, true account of nature".[187] Kuhn does not deny the objectivity of natural science *because* he acknowledges instead *pluralism* of valid approaches, but because the supposedly infinitely dividable nature consists of countless details. Kuhn adequately identifies "an increasingly detailed and refined understanding of nature"[188] reached by "a community of scientific specialists".[189] This description of natural science may be accurate, but due to this description Kuhn regards science itself as *lacking any objective truth*. Kuhnian textbooks on philosophy of science disapprove that science is a search for truth or approximation to the truth.[190] Since we purportedly cannot speak of any "single category 'Science'",[191] the Kuhnian followers deny a "universal conception of Science".[192] Hegel's philosophy seems to provide a possible response to this distrustful thought.

Kuhn's naturalistic approach to science consists in his strong analogy between science and nature. Kuhn, the ex-physicist specializing in history of physics, draws all the major examples of scientific revolutions from the natural sciences. Science is not conceptualized by him as a generic idea, so that when he says "science" he uncritically refers only to that which is already approved as science in his times, the given phenomenon of science: modern empirical natural science. The aimlessness of science in Kuhn's theory is his "lacuna" which probably made the nature-mind-gap in current philosophy of science even more unbridgeable than it was before him.

The lacuna of the goalless science is responsible for the lacuna of the hermeneutical method: Kuhn himself does not confront any previous philosophers of science in his work, except a few historians of science.

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[187] Kuhn, 1962, p. 171.
[188] Ibid., p. 170.
[189] Ibid., p. 160.
[190] Cf. Chlamers, 1982, p. 169.
[191] Ibid., p. 168.
[192] Ibid., p. 169.

Systematical treatment of other determinations of science and learning from the history of his own discipline, as Kuhn himself recommends, could have led him to rethink some of his discoveries. The fact that he leaves it undone leaves a shadow on his project which contemporary philosophy of science still tries to scatter.

4. Hegel's task of scientifying philosophy

Hegel's deliberations on the essence of science do not aim at constructing a descriptive theory of science that serves only scientists or beginners in science, nor does he analyze existing phenomena of science only for the theoretical sake of their proof or critique. Rather, as this chapter will show, his thoughts on science have a clearly metaphilosophical role insofar as they supply the guidelines for the project of the scientification of philosophy. Hegel works on metascience, not for the sake of science, but for the sake of turning philosophy into science. The self-appointed task of scientifying philosophy is the constitutive act of his philosophy of science. The step Hegel wishes to take from philosophy to science is expressed in his step from phenomenology to logic and analogue to the step from Platonic *philo-sophia* to Aristotelian *scientificity*. His task came under suspicion of promoting scientism and led to strong reactions against his philosophy of science, not only within the analytic tradition, but also among prominent successors of German philosophy.

4.1 Hegel's task: scientism?

Let us begin with Hegel's words on what he has set himself to do in *Phenomenology of Spirit*. The shortest formulation of his self-given task stems from the "Introduction": "*die Erhebung der Philosophie zur Wissenschaft*".[1] The literal meaning of *Erhebung... zur* is wide, bundling two perspectives of the action of *heben*: it means that we actively *raise* philosophy up to science from above, from the scientific point of view, but

[1] 3/14.

also that philosophy is passively *being raised* up to science, if we speak from the quasi 'lower' perspective of philosophy. Beyond the active and passive aspects of the description of the action, the *Erhebung* of the 'non-scientific' philosophy means a certain qualitative alteration, becoming better or higher, of course not physically or geographically, but by reclassification as science, as a higher degree, level, status or rank. It seems that Hegel assumes science to be higher than philosophy, and if we consider what was said about the young 'anti-scientific' Hegel, we can conclude that this assumption reflects his new insights regarding the higher status of science to be secured in his own system of thought. Hegel's task in fact takes on the dimensions of a 'mission': the scientification of philosophy.

At least from the viewpoint of philosophy, such a mission is not uncontroversial, as it not only presumes that science already stands in a higher position than philosophy, but also that philosophy is incomplete or insufficient, somehow not good enough as it is and in need of being improved. Hegel's words let infer that philosophy is still not science, but should be. Also in the *Science of Logic* Hegel suggests that logic and philosophy *should be* science[2] and not just a doctrine. In the *Encyclopaedia* we finally encounter the first full development of the "philosophical sciences", albeit in outlines. The formulation of this mission raises thus a difficulty: does the philosopher Hegel truly believe that science, in the broad Latin and German sense of the word, is higher and better than traditional philosophy?

[2] 5/16: "*Die Philosophie, indem sie Wissenschaft sein soll, kann, wie ich anderwärts erinnert habe, hierzu ihre Methode nicht von einer untergeordneten Wissenschaft, wie die Mathematik ist, borgen*". Miller misleadingly translates "*sein soll*" as "would be", and not "should be": "Philosophy, if it would be a science [...]" (1991, p. 4).

As a preliminary note, it is useful to recall that in Hegel's times philosophy did not have the official status of science at the university, as it was mainly taught as propaedeutic to theology, for example in Tübingen,[3] and counted as the 'handmaiden of theology'. Hegel's vision was an expression for a new academic model, inspired by the Jena University and later by Humboldt's plan. To be sure, the question of whether philosophy is or ought to be science, and to what extent, was the subject of a recurring debate, before and after Hegel. The very declaration of the will to scientify philosophy is not originally Hegel's, but the legacy of Kant and Fichte. In fact, the idea of philosophy as science has a history reaching at least to Aristotle's description of philosophy as ἐπιστήμην τῆς ἀληθείας, "science of the truth".[4] After Hegel, even the logical positivist Schlick chooses for himself the same Hegelian task of making philosophy more scientific.[5] While breaking with the empiricist tradition, Schlick declares the end of the "hostile opposition"[6] between science and philosophy, however he believes that Hegel is co-responsible for this opposition. It is thus a matter of historical irony and a sign of historical ignorance when Michael Friedman, the great historian of philosophy of science, asserts that the history of modern philosophy of science begins with logical positivism, while ignoring Hegel's legacy.[7]

In order to reach a better understanding of Hegel's task, we ought to take a closer look at its explicit formulation in the "Preface":

[3] Cf. Pinkard, 2000, p. 430.
[4] Aristotle, *Metaphysics*, book 2, 993, b20.
[5] Cf. Schlick, 1979, p. 141.
[6] In "Is there intuitive knowledge?" from 1913 (Schlick, 1979, p. 141).
[7] Cf. Friedman, 2012, pp. 1f.

> "The true shape in which truth exists can only be the scientific system of such truth. To help bring Philosophy closer to the form of Science, to the goal where it can lay aside the title of '*love* of *knowing*' and be *actual knowledge* – that is what I have set myself to do".[8]

Compared with the "Introduction" which was written before the "Preface", it is noticeable that, after finishing the writing of his work, Hegel's statement regarding the task has slightly softened, perhaps because he was more circumspect and the task had seemed to become more modest: philosophy should now just attempt to get "*closer* to the form of Science". Philosophy should become morphologically more scientific. As Shlomo Avineri notes, and later Mario Wenning, the task that Hegel announced for himself gave birth to a new scientific form of philosophical consciousness and so to a new epoch.[9] For the sake of creating a new philosophical consciousness, Hegel holds the scientific form to be as high as it can get and as high as it can be, believing that it is the locus of truth. The most significant thing Hegel expects to expose through scientifying philosophy is the demonstration of truth. From his determinations of science, it is derivable that philosophy is for him a process of self-knowledge, a logical "becoming" that consists of a set of concepts and that has truth as a whole. This kind of knowledge leads to the cognition of the "absolute spirit".

As remarked before, to argue that the true locus of truth is to be found only in science is highly contentious: Hegel's philosophy of science can come under suspicion of rampant scientism. Since the dwelling on the plan of scientification only adds to this growing suspicion, we need to inquire further into Hegel's possible relation to scientism. Unsurprisingly, the term

[8] Hegel, 1977, p. 3; 3/14.
[9] Cf. Avineri, 1972, p. 66; Wenning, 2009, p. 45.

scientism originally served as a positive expression for the advantage of the natural sciences, namely by the French biologist Félix le Dantec.[10] In the wake of the ideas of Wilhelm Dilthey concerning the original methods of the humanities, and the ideas of Max Horkheimer and Theodor W. Adorno concerning the critical theory of science, scientism became a pejorative term for the blind ideologies of positivism and naturalism. Hegel, who clearly does not hold such naive forms of scientism, cares about the scientific character of philosophy because he recognizes the link between the manifested truth and the rigid structures of epistemological systematicity. Only a knowledge that is organized as a scientific system is "actual" (*wirklich*) in the sense of having a true effect on our understanding of reality. "Actualized" knowledge is shared knowledge that does not only "appear", but is also acknowledged as true. The systematization of knowledge is the process in which a certain composition of concepts logically exhibits its proof and so becomes "demonstrable" (*dargestellt werden kann*).[11]

The task of scientifying philosophy is linked to the task of philosophy itself, as Hegel sees it, so that the understanding of the one task is based on the understanding of the other. Let us therefore illuminate the task of philosophy according to Hegel.

The task of philosophy, which has been formulated for the first time in the *Difference* essay (1801), is "to overcome these finitudes [of consciousness] and construct the Absolute in consciousness".[12] "The Absolute" is here the generic name for real knowledge and real science, and not some utopian ideas about divine cognition, which is actually unreal and unreachable. Philosophy is thus involved in a modern task: the

[10] Le Dantec, 1912, p. 51.
[11] 3/27.
[12] Hegel, 1977a, p. 88; 2/19.

treatment of the concept of consciousness in light of the concepts of truth, knowledge and science. “The Absolute” can be grasped in consciousness as the amalgamation of the objective and subjective perspectives. According to this task, philosophy should become scientific because science is a higher form of self-consciousness and hence it is exactly that which is capable of “constructing the Absolute in consciousness”. Science can construct “the Absolute in consciousness” because scientific work is the praxis of producing reliable generic knowledge claims.

In the “Preface” to *Phenomenology of Spirit* Hegel articulates the difference between the ancient and modern task of philosophy as analogous to the difference between ancient and modern education. The goal of ancient education was to take natural consciousness out of sensual perception and bring it into the purely categorical thinking of the universal. It did this by asking *ti to on* and looking for the eternal and fixed being. Now it is time “to bring fixed thoughts into a fluid state” and so “to give actuality to the universal”.[13] In what can be seen as his own idiosyncratic supplement, Hegel visualizes the new intellectual activity of re-actualization as *liquefaction* which symbolizes free motion and high flexibility, organic life and liveliness in general. Hegel gives a further original determination of the modern task by using the rare verb “*begeisten*”, which literally means to bestow something with spirit, “to impart to it spiritual life”.[14] The term *begeisten* was also used in the sense of “dissolve” in the chemistry of Hegel’s time.[15] To re-actualize the solid universal categories means to dissolve them by the accession of spirit to

[13] Hegel, 1977, p. 20; 3/37.
[14] Ibid.
[15] The verb *begeisten* was renewed by Johann Schuster in his translation of the Latin work of the chemist Jakob Joseph Winterl *Darstellung der vier Bestandteilen der anorganischen Natur* (Jena: Friedrich Frommann, 1804).

their matter. What is required for critical scientific thought is thus not simply *begeistern*, i.e. enthusiasm, but *begeisten*, dissolution by "spiritualizing". This act of modern science, which aims at "freeing fixed thoughts from their fixity",[16] manifests the emancipatory aspect of Hegel's task of scientification. The spiritualizing of the fettered and captured categories of thought is Hegel's version of deconstruction. In light of this task, philosophy should become science because science is exactly the cognitive instance that deals with the actuality of universal knowledge and its expressions in diverse lifeforms.

In *Philosophy of Right*, Hegel comes once again to philosophy's task which is "[t]o comprehend *what is*". This time, however, he emphasizes that the task is not "to construct" what *ought to be*, because "*what is* is reason".[17] In contrast to a common criticism, Hegel consciously rejects the constructivist element of traditional metaphysics and sets the epistemological question concerning the status of philosophical knowledge in relation to the ontological question of the disclosure of being. He takes great pains to show that to develop a system of thought in evolutionary terms does not compulsively mean to create a construction in an arbitrary manner, but rather *to expose a composition*, which means to exhibit the multifaceted forms of existent thought-compositions. In light of this task, philosophy should become science because true science is knowledge about being. The phenomenon of science embodies the self-comprehending thinking spirit which systematically deals with the being itself in terms of the conditions of true cognition of what there is.

As shown above, Hegel's task of scientifying philosophy is entangled with the task of philosophy as the *comprehension of what is*, and it serves

[16] Hegel, 1977, p. 20; 3/37.
[17] Hegel, 1991, p. 21; 7/26.

this task. This scientification does not correspond to scientism in the common sense of preferring natural science methods, but it insists on the self-conscious thinking process within philosophy. The next section will show that Hegel's task has its origins in the Greek conception of philosophy as *episteme* and *noesis noeseos*, and so his task of scientifying philosophy actually means its *re-scientification*.

4.2 On the origin of Hegel's task: *episteme* as *noesis noeseos*

The Hegelian discourse of philosophy as *Wissenschaft* is rooted in the relation of Ancient Greek philosophy to the ideal of science as "episteme", ἐπιστήμη. For Plato and Aristotle, each time a bit differently, the concept of science is strongly entangled with that of philosophy. Hegel's philosophy of science is rigorously committed to its ancient beginning, since he holds that the "development of the philosophic science as science [...] begins with Plato and is completed by Aristotle".[18] Hegel thus repeats history in an analogous manner, defining philosophy, like Aristotle, as the knowledge of the truth, of that which *is*, while making a case for abandoning the idea of Platonic love of knowledge. In light of Hegel's task of re-scientifying philosophy through the re-actualizing and *Begeisten* of the old fixed categories of thought, we shall investigate his relation to Plato's and Aristotle's concept of ἐπιστήμη.

4.2.1 Scientifying philosophy begins in Plato

According to Hegel, Plato is the one who started the process of scientifying philosophy, as he brought the "Socratic point of view to the scientific".[19]

[18] Hegel, 1995a, p. 1; 19/11.
[19] Ibid.

Plato started this process by grasping both reality and thinking in "the movement of science, as the Idea of a scientific whole".[20] Hegel praises Plato's philosophy as the "science of the universal in itself"[21] and as the science of "ideas" that clearly contains "one spirit".[22]

Plato himself, however, does not explicitly determine philosophy as science, but literally as the love of wisdom, *philo-sophia*. Love is not understood here in the common sense of φιλεῖν, i.e. as love of something one already possesses, like in the sophist concept of wisdom, but in the sense of desiring (ἐρᾶν) or yearning (ἐπιθυμεῖν) for something one does not possess. The Platonic philosopher is not merely a philodox (φιλόδοξος), a "lover of opinions",[23] but rather a philomath (φιλομαθὲς), a "lover of learning"[24] who seeks universality. Plato claims that the philosopher desires to reach "cognition" or "recognition" (γνῶσίς/γνώμην) of the truth, i.e. "gnosis" of that which *is* and which remains the same, including the last cause – the idea of the good. He believes that the human followers of wisdom, as finite creatures, are not "wise" (σοφοί), because only god is,[25] but they are also not "ignorant" or "unlearned" (ἀμαθες) – they are between both.[26]

All in all, this Platonic approach seems to match the way Hegel understands philosophy before the *Phenomenology of Spirit*, that is, before he aspires to change the "love of knowledge" to "actual knowledge". Still, Hegel, who is a philomath and not a philodox, does detect a scientific dimension in Plato's philosophy, namely in his rigorous epistemological

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[20] Ibid.
[21] 19/38: "*überhaupt Wissenschaft des an sich Allgemeinen".*
[22] 19/27: "*ein Geist".*
[23] Plato, *Republic*, 480 a.
[24] Ibid., 376 b.
[25] Cf. Plato, *Phaedrus*, 278 d; Cf. Plato, *Symposium*, 204 a.
[26] Cf. Plato, *Symposium*, 203 e ff.

considerations. For even though Plato stresses the human finitude and the human nescience, he upholds knowledge as the counterpart of mere belief in quite the same way that Hegel's ambition to transform the "love of knowledge" to "actual knowledge" leads him to look for the scientific element in all kinds of objects of thought. Plato's conception of ἐπιστήμη is surely surrounded by some nebulosity. But what is evident and agreed is that he contrasts the highly appreciated ἐπιστήμη with the common *doxa*, the mere subjective intuition. Even if the *doxa* is true, it is an unjustified belief and hence clearly "outside of the sphere of knowledge".[27] Plato does not expressly confirm that knowledge is *true doxa* with a *logos* or "true opinion accompanied by reason" (μετὰ λόγου ἀληθῆ δόξαν),[28] because the justification of a *doxa* is based on another *doxa* and so leads to an infinite regress. Knowledge is thus essentially not a *doxa*, and justified true belief also remains a mere belief. Although Plato did not state that knowledge is *meta logou alêthê doxan* this formula has come down in the history of thought as the traditional definition of knowledge, at least until its re-problematization in Edmund Gettier's essay "Is Justified True Belief Knowledge?" (1963).

Like Plato, Hegel also attributes to the *doxa*, which he calls *Vorstellung* or *Meinung*, the "poorest" truth, the mere certainty of an immediate sensual perception. Only the truth of *Wissenschaft* that is directed at that *which is* is intelligible. Besides taking from Plato the rejection of the *doxa*, Hegel's philosophy of science also took the constitutive element of the *logos* (*Begriff*) as a condition for being-in-truth. Moreover, when Hegel comments at the end of the *Phenomenology of Spirit* that "its path" is "the

[27] Plato, *Theaetetus*, 201 d.
[28] Ibid.

recollection of the Spirits"[29] he pays tribute to Plato's reference to the emergence of knowledge as "recollection" (ἀνάμνησις), as learning through rediscovering inner eternal truths.

The structure of *Phenomenology of Spirit* echoes the task of philosophy in *Phadeo*, namely of freeing the imprisoned soul from the body and the senses by directing it to itself, to the "thinkable" (νοητόν), which is its intelligible side, and which can be rendered in German as *das Geistige*. Plato's plan aims at the salvation of the soul through the conversion of the philosomatic (φιλοσώματος) human, the lover of the body, to a philological (φιλόλογος) one, the lover of thinking. This plan famously culminates in the macabre description of philosophy as learning to die. The voluntary dissociation from biological life is seen as the highest bliss, a longed-for felicity. Although Hegel also depicts the *Geist* as that which goes beyond biological nature, he actually conceives of *Geist* as that which is full of life and explicitly distances himself from the ancient task of tearing humans from sensuality, saying that he rather aims at the dynamization and revitalization of the received fixed categories of traditional thought.

It is almost ironic that, in spite of the decisive Platonic distinction *doxa-episteme*, Hegel condemns Socrates' overstated doxology, his constant getting involved with the prevalent doxas, as a proof for Plato's lack of "scientific exposition of philosophy".[30] Hegel criticizes Plato's philosophy for not having a precise systematic form or a real scientific presentation.[31] Yet, he only explains this situation in a general-historical manner, claiming that Plato's cultural era was not ready for "real scientific works" and that it was only in Aristotle that philosophy attained a "scientific systematic

[29] Hegel, 1977, p. 493; 3/591.
[30] Hegel, 1995a, pp. 17; 19/27.
[31] Cf. ibid., pp. 1f; 19/11f.

representation".[32] Let us put aside the judging of this statement and head to the fruit of Plato's initial seed of philosophical science: Aristotle's determination of ἐπιστήμη.

4.2.2 Scientifying philosophy is completed in Aristotle

Hegel considers Aristotle as a "scientific genius",[33] as the one who completed the scientification of ancient Greek philosophy. In quite the same manner, Hegel considered himself to be the one who should complete the scientification of modern philosophy, and indeed Heidegger named him the "completer" (*Vollender*) of the whole occidental metaphysics. Hegel takes Aristotle to be more "scientific" than Plato because, in contrast to Plato, Aristotle explicitly equates the theoretical knowledge of philosophy with wisdom and ἐπιστήμη: "philosophy is rightly called a knowledge of Truth" (ἐπιστήμη τῆς ἀληθείας).[34] In this, Aristotle, like Hegel later, leaves room for the human hopes of attaining accessibility to the highest form of knowledge, the knowledge of being qua being, τὸ ὂν ᾗ ὄν.[35] Aristotle conceptualizes this "looked-for knowledge" (ζητουμένη ἐπιστήμη) as "first philosophy" (πρώτη φιλοσοφία), since it contains the knowledge of the being of all beings, the first being which is the first principle, the unmoved mover, or "god". This conception of "onto-theo-logy", as Heidegger put it, locates Hegel rather in Aristotle's neighborhood than in Plato's.

On this view, Hegel's task of scientification aims at reenacting the intellectual step from Plato to Aristotle by bridging the gap between Platonic love of wisdom as the *project of science*, and Aristotelian

[32] Ibid., pp. 2, 17; 19/11, 27.
[33] Ibid., p. 117; 19/132. In the translation of Haldane and Simson: "scientific geniuses".
[34] Aristotle, *Metaphysics*, book 2, 993 b20 (In Tredennicks' translation).
[35] Ibid., book 4, 1003 a21.

knowledge of knowledge as the *structure of science*. Hegel does this with the help of his own metascientific apparatus and in relation to the epistemological problems of his time. But this does not mean that Hegel simply borrows Aristotelian language of categories, as there are several major differences between their epistemological claims.

Firstly, Aristotle defines his *prōtē philosophia* as *theologia* (θεολογία), the knowledge of god qua the Supreme Being, arguing that the "most honorable knowledge" (τιμιοτάτη ἐπιστήμη) is the "most divine" (θειοτάτη), not only because *theos* has it, but also because it has *theos* as object of inquiry. Aristotle does this because he defines wisdom as god's knowledge, following Heraclitus. Hegel's *Logic* may be read as a version of such Heraclitean onto-theology, but the Supreme Being in Hegel is called "the absolute" in the sense of that which is infinite and unconditioned, more specifically: "absolute knowledge", "absolute spirit" or "absolute idea". It is true that Hegel mentions god, but it is undeniable that he does not explicitly or exclusively place god in the center or at the top of the system; he does not use god as a title.

Secondly, Aristotle characterizes philosophy differently from Hegel insofar as he regards philosophy as the investigation of "principles and causes" (ἀρχὰς καὶ αἰτίας),[36] whereas Hegel speaks of "shapes of spirit" and "determinations of thought". Consequently, Aristotle also divides philosophy, as theory of science, differently from Hegel. For Aristotle, philosophy consists of *mathematics*, *physics* (natural philosophy as "secondary philosophy") and *theology* (ontology as "first philosophy").[37] In Hegel's program, the first philosophy is not called theology or metaphysics anymore, but *logic*, and mathematics is a part of it; there is *philosophy of*

[36] Aristotle, *Metaphysics*, book 1, 982 a.
[37] Ibid., book 6, 1026 d.

spirit (as the second "secondary philosophy") and also *philosophy of nature*; in brief, less *theos*, more *logos* and human sciences. This program is in fact not alien to contemporary philosophy in general, perhaps with the exception that since Frege and Quine, non-formal logic of abstraction à la Hegel is missing. Hegel's phenomenological investigation and his lectures on history, art and religion cannot be found in the same dimension in Aristotle, on the one hand, or in analytic philosophy, in the other hand.

Thirdly, although both agree on the emergence of knowledge through conceptual mediation, there is a difference in the terminology with which Hegel and Aristotle determine their conceptions of knowledge. Whereas Aristotle, like Frege, overestimates the doctrine of sound inferences by syllogism (συλλογισμός) and induction (ἐπαγωγή), i.e the deductively proven knowledge by means of demonstrative proof (ἀπόδειξις),[38] Hegel recognizes the insufficiencies of this too formalistic approach towards conceptual necessity. He mocks this doctrine as a too abstract calculation and as a merely external justification that is mostly contingent. In addition, Aristotle holds that "to possess scientific knowledge" (ἐπίστασθαι), which can be technically rendered as "to science", means "to know [γινώσκειν] the cause [αἰτίαν] on which the fact [πρᾶγμά] depends, as the cause of that fact and of no other, and, further, that the fact could not be other than it is".[39] "To science something" means then to Aristotle to identify all the necessary reasons for it. Yet, for Hegel, who diminishes the talk about cause (*Urasche*) and reason (*Grund*) within philosophical discourse and leaves it to natural science, "to science something" would mean to *express its concept* by demonstrating all the sublated stages and contradictions of the concept as a whole. He employs in his epistemology the

[38] Cf. ibid., book C 1000 a 5–8.
[39] Aristotle, *Posterior Analytics*, book 1, chapter 2.

phenomenological language that distinguishes between the modes of "appearance" and "actuality".

A further difference concerns the learnability of knowledge. The Aristotelian *episteme*, as a form of knowledge attained by sound syllogistic inferences and induction, is one of the *virtues of thinking*, also called "dianoetic virtues" or "intellectual virtues", next to *téchne* (art) and *phrónesis* (practical judgment), which are teachable and learnable, need experience and time, and are not by nature in humans[40] – a conception that Hegel adopts for his *Wissenschaft*. Yet, for Aristotle, the other two intellectual virtues, *sophia* (wisdom) and *nous* (intellect), are not learnable or teachable, for they require a deep contemplation of the beings that have necessarily unchanging causes, the beings that are not capable of being otherwise. The Aristotelian *nous* cannot be acquired by every person and so corresponds more to Schelling's gifted *Sonntagskinder* than to Hegel's *Geist*. Since *sophia*, wisdom, is generated through the combination of *nous* and *episteme*, then wisdom remains from the beginning not accessible to everyone.[41] To be sure, it also remains open to what extent anybody can acquire the Hegelian *Geist* that knows itself as such. The difference to Aristotle is that this all-accessibility is not ruled out in Hegel from the beginning, per definition, as it is in Aristotle.

There is also a terminological distinction to be mentioned concerning the subject of knowledge: for Plato and Aristotle, it is the psyche, i.e. the human soul, or god, whereas for Hegel, it is consciousness or spirit. Hegel's terminology is tighter: *Bewusstsein* is a being who has *Wissen*, just like *con-scientia* has *scientia*. Yet, the idea of the self-conscious consciousness clearly echoes the Aristotelian reflexive *noesis noeseos*

[40] Cf. Aristotle, *Nicomachean Ethics*, Book 6, chapter 3, 1139ba–1140a.
[41] Cf. ibid., Book 2, chapter 1, 1102a–1103b.

noesis, if one is cautious not to interpret this kind of reflection as narcissism or positivism.

The last difference to be mentioned concerns the realization of Hegel's task through his phenomenology which shows the way to the "pure science" of the "determinations of thinking". This "science of logic" can be seen as Hegel's version of the *prima philosophia*. But whereas in the received Aristotelian corpus, the *prima philosophia* qua meta-physics is preceded by physics, Hegel takes pains to provide a different path to his *prima philosophia*. This path, this "ladder", is the "science of the experience of the consciousness", or more stenographically: "phenomenology". For the sake of the realization of his task of scientification, Hegel renews the term "phenomenology"[42] and makes it central to his philosophy of science.

After dealing with the ancient sources of Hegel's task, which show what inspired his idea of re-scientifying philosophy, we continue with the investigation of the trigger for his task: what caused him to choose this task?

4.3 The triggers for the task

Hegel's task of re-scientifying philosophy was triggered by what he regarded as the unscientific and misguided conception of "absolute knowledge" as "immediate knowledge". Hegel detects this conception especially in the systems of Fichte and Schelling, but also in the romantic figures of his era, the five Friedrichs: Friedrich Hölderlin, Friedrich Schleiermacher, Friedrich Heinrich Jacobi, Friedrich von Hardenberg aka Novalis and Friedrich Schlegel. Their wish to attain "immediate knowledge

[42] As we shall see in 4.4.1

of the absolute" is considered by Hegel as *contradictio in adjecto*. In the "Preface" to *Phenomenology of Spirit* he names ten misconceptions of the "absolute knowledge": "intuition" (*Anschauung*), i.e subjective "outlook" or "view", "common sense" (*Gemeinsinn*), "feeling" (*Gefühl*), "dullness" (*Trübheit*), "being" (*Sein*), "edification" (*Erbauung*), "religion", "ecstasy", "enthusiasm" and "prophetical way of speaking". All these interpretations presuppose that there is no need to use discursive conceptual schemes in order to reach truth. They deny the significance of logical soundness for the scientific integrity of philosophical thinking. Hegel's verdict is that they simply "gave up" (*Verzicht tun*) science.

An incorrect and non-reflective concept of the absolute is for Hegel one that does not take the concept of concept into consideration. In contrast to the misleading romantic ideas, he argues that the absolute and the truth can only be reached by the "labor of the concept" (*Arbeit des Begriffs*), that is, by "aspiring to reach the concept" and by "making an effort towards the concept" (*die Anstrengung des Begriffs*). This wording hints at the term "studying the concepts", as *sich anstrengen* is the translation of the Latin verb *studere*, which means to aspire or to make an effort. Hegel demands from the philosopher scientific "seriousness" (*Ernst*), "patience" (*Geduld*) and even "pain" (*Schmerz*). Perhaps because of this, Schelling and Hölderlin gave him the nickname "the old man".[43]

The reason for Hegel's attack on the "immediate knowledge" is his view that even the "sensual certainty" (*sinnliche Gewissheit*) about particular empirical objects is itself "mediated" (*vermittelt*) and obtained by general concepts like "this", "here", "now", "I". These concepts operate as logical categories, like kind, type or species, which refer to something we already know of, because otherwise we could not identify it. Here, Hegel

[43] Pinkard, 2000, p. 26.

agrees with the basic postulate of Quine's critique of empiricism. Hegel argues that to refer to a particular we need a universal, which only seems to be the opposite of a particular. He claims that we "mean" a particular, but say a universal and so "contra-dict" (*wider-sprechen*) ourselves in language, speak "against" ourselves. Nobody can "mean" by "this" some real immediate sense data. The "sensual certainty" is indeed certain, but it is not as immediate as it thinks, for it requires concepts like "this", and thus a whole framework of general forms and types. Hegel's main claim is that "*there is* nothing in heaven or nature or spirit or anywhere else that does not contain just as much immediacy as mediation".[44] In fact, he criticizes the arbitrary principle of atomism, the alleged sense evidence, as the "highest externality", both in physics and in the science of the state.[45]

The trigger for Hegel's task can also be detected after his lifetime, in the philosophy of Russell and Moore. Russell, who did not notice the problem of immediate knowledge, did not recognize Hegel's attack on logical atomism *avant la lettre*. This led him to adopt a naive realist stance which holds that things are just as they are seen and hence knowledge is generated by acquaintance, not by inference or mediation.[46] His atomistic theory of pure sensation data suggests that they just need "noticing" in order to become knowledge. The knowledge of material objects is for Moore also based on sense perception: "I shall speak of the *direct apprehension* of sense-data".[47]

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[44] Hegel, 2010, p. 46; 5/66.
[45] In *Science of Logic* in the chapter on the "Being-for-itself" (5/186).
[46] In chapter 5 in Russell's work *The Problems of Philosophy* (1912); see also 1.2.2.
[47] Moore, 1993, p. 49. This citation stems from Moore's essay "Sense-data", a lecture written 1910, first published in 1953.

To understand Hegel's task better, we shall thus deal with the main objects of his critique: the fallacies in the notions of science in Fichte, Jacobi, and Schelling, as Hegel conceives them.

4.3.1 Fichte's unsatisfactory "doctrine of science"

The Kantian aspiration that philosophy should become a "rigorous science" (*strenge Wissenschaft*) recurs in Fichte's "doctrine of science" (*Wissenschaftslehre*) as the task of modern philosophy, and it is central to the language of his project. Later, the general demand for rigorous science would also become the characterization of Husserl's ideal of science. Fichte's response to this task, his metascientific project in the "doctrine of science", inspired Hegel in the formulation of his task, but also vastly differs from Hegel's conception. Before considering the main differences between Hegel and Fichte, it is worth observing one of Fichte's unique ideas that Hegel has adopted, modified, and made famous: the intersubjective character of self-consciousness. This conception, which lies in the heart of Fichte's philosophy of spirit, can expose the social dimension of Hegel's epistemology and of his concept of science.

According to Fichte's plan, the rigorous scientific study of self-consciousness essentially belongs to the framework of rational a priori social study and law study. The execution of this plan takes place in his work *Foundations of Natural Right in accordance with the Principles of the Wissenschaftslehre* (1796/7). Fichte's original claim in this work is that self-consciousness is a social phenomenon: the existence of other rational free subjects, along with their "summons" (*Aufforderungen*) to respect their freedom, is a necessary condition for the formation of one's own self-consciousness. His demonstration aims at showing that, due to the real presence of another self-consciousness, my own self-consciousness obtains

the possibility of becoming aware that it is in its essence a free individual too, even though it may not completely know at the beginning the details of what it means to be oneself. This idea of intersubjectivity was Fichte's striking tactical solution to the problem of the unclarified genesis of self-consciousness out of consciousness. This hard question of self-consciousness was already set by Kant's critics, Jacobi and Maimon: How can consciousness recognize itself among the other objects in the world? That is, how can consciousness become self-conscious at all if it does not know what consciousness is and therefore has no self-knowledge? Fichte pointed out a new direction to understand the modern question of freedom and interpersonal relationship out of the complexity of the problem of self-consciousness. Hegel exercises a similar powerful strategy in *Phenomenology of Spirit* in the chapter "Self-Consciousness". Later, Husserl develops further the analysis of intersubjectivity in his transcendental phenomenology.

To return to Fichte's task, Fichte takes the Kantian mission of making philosophy a principal-based rigorous science very seriously, making it his main life project as a philosopher. In his manifesto *Concerning the Concept of the Wissenschaftslehre or of So-called Philosophy* (1794)[48] he delivers an early version of his metaphilosophical endeavor: to replace henceforth the name "philosophy" with "doctrine of science" (*Wissenschaftslehre*), "science of science" (*Wissenschaft der Wissenschaft*) or simply "science" (*Wissenschaft*).[49] The plural term "science of sciences" (*scientia scientarum*) was not coined by Fichte himself and was ascribed at different times to logic, dialectic, metaphysics, theology, and at other times to rhetoric, music, political science and law science, as an evaluative term,

[48] *Über den Begriff der Wissenschaftslehre oder der sogenannten Philosophie*.
[49] Fichte, 1972, p. 37 [18].

namely as superlative.[50] Fichte's use of the term "science of science" is in fact more comprehensive, indicating universal science that encompasses all the particular sciences in itself.

The motive for Fichte's renaming is his will to erase the label of 'philos' in philosophy, to 'de-philosophy' philosophy. He explains that his program aims at abandoning the flattening comparison of philosophy with "hobby" (*Liebhaberei*), perhaps due to what he regarded as the 'unscientific' aspect of love in hobby, i.e. of *Liebe* in *Liebhaberei*. Fichte also condemns the idea that philosophy is "connoisseurship" (*Kennerei*), as he rejects the unserious and superficial *Kennen* in *Kennerei* as mere acquaintance, as a form of unscientific "dilettantism". According to Fichte, again, more like Aristotle and less like Plato, philosophy should itself become wisdom, *sophia*, as one scientific system. *Wissenschaftslehre* became the generic name for Fichte's system as well as for other projects in later theories of science, like those of Paul Oppenheim and Rudolf Carnap.

As shown above, in the proclamation of his own task, Hegel repeats Fichte's formulation almost word for word, joining the creative idea of redefining philosophy. Yet, going beyond Fichte, Hegel expects philosophy to become "real knowledge" in the sense of "actual knowledge", a learnable knowledge with a historical basis, not just Fichtean "formal knowledge" of knowledge. Therefore, in spite of Fichte's influence, Hegel never chose to call his own endeavor "doctrine of science", but "system of science". It is generally true that the form of Fichte's system is rigorously philosophical-logical and his epistemology contains conceptual elements regarding the essence of science, such as the relation of the "I" to the "Not-I" and back to itself, but it does not include any kind of phenomenological description of what historically already counts as "science" followed by a

[50] Cf. *Historisches Wörterbuch der Philosophie*, vol. 12, p. 950.

critical-dialectical account of it. As a pure metatheory, Fichte's work does not include "phenomenology of spirit", but only the thesis of the self-consciousness or "the absolute I". Hegel criticizes Fichte's philosophy for taking "nothing empiric"[51] from the outside and thereby holding "the old view of science" (*die alte Vorstellung der Wissenschaft*)[52] which means to begin science with inferences out of formal principles.

The most essential difference between Fichte and Hegel is the deductive structure of their systems. Although both use the term "deduction" to characterize the inference rule they employ in their systems, it is Fichte who chooses to begin his main work, *Foundations of the Entire Wissenschaftslehre* (1794/5)[53], the first of no less than 10 trials to define and reshape the *Wissenschaftslehre*, with the "first, absolutely unconditioned principal". This first principal, this "ground sentence" (*Grundsatz*), is for Fichte the foundation of subjectivity in the form of the "pure I" (*das reine Ich*). The first stage of the Fichtean a priori I is not equipollent with Hegel's version of the natural consciousness in the *Phenomenology of Spirit* or the individual natural spirit in the *Philosophy of Spirit*, because for Fichte, this "pure I" is exactly the same as the "absolute I", which he also categorically labels as "being" and "identity". Hegel's concept of the "I" in *Phenomenology of Spirit*, defined as the "sensual certainty" of the "natural consciousness", is as particular as the meaning of each "here" and "now", and hence far from being absolute. In fact, being the departure point, this natural "I" is the most distant point from the absolute. Also in the *Logic*, Hegel's starting point is the category of being, which is both immediate and undetermined, and certainly not identical with the absolute idea, the last stage. Methodologically, Hegel's

[51] Hegel, 1995b, p. 486; 20/392.
[52] Ibid.
[53] *Grundlage der gesamten Wissenschaftslehre*.

natural "I" or simply "being" is one immediate appearance of the absolute transindividual structure of the *Geist*. In contrast to Fichte, Hegel chooses rather to finish his work with a chapter on the metasubjective "absolute knowledge" or "absolute idea". This absolute has a common root with the *Absolvent*, the graduate, as Heidegger reminds us. Therefore, Hegel believes that Fichte, who begins each time with the absolute, misuses this concept, if not abuses it, shooting it like a "pistol" and treating it hastily and clumsy, as Hegel bitterly comments in the "Preface" to the *Phenomenology of Spirit*. Fichte represents for Hegel another Kantian "subjective" transcendental idealist.

In line with Hegel's criticism of Fichte as being too Kantian, he appreciates Fichte for dismissing the Kantian concept of the mind-independent "thing in itself" as indefensible and not including it in his system. In this, Fichte, and later Hegel, follows the first critics of Kant, Jacobi, Maimon and Schulze, who all vehemently attack this concept as nonsense. Hegel takes this critique a step further, insofar as he points out another possible meaning of the "thing in itself" in *Science of Logic* as "the *possible*, the thing of representation, or the thing of thought [*Gedankending*]".[54] He argues that Kant wrongly refers to the "in itself" as the abstraction from all determinations and determinateness, and therefore it becomes clearly unknowable and indeterminable per definition, whereas in fact the very concept of the "in itself" is *our own* concept and "happens" (*fällt*) in our consciousness. In contrast to Kant, Hegel defines the "thing in itself" as "only the product of thought, and of merely abstractive thought",[55] that is, "the concrete existent as the *essential immediate* that has

[54] Hegel, 2010, p. 423; 6/129.
[55] Ibid,, p. 41; 5/60.

resulted from the sublated mediation".[56] We can thus know the thing in itself just as we can know the content of any other thought of ours.

For Hegel, Fichte's "doctrine of science" was therefore a good attempt with an honest title, although it was essentially unsatisfactory insofar as it needed conceptual corrections, elaborations and historical concretizations. Hegel was similarly critical of Jacobi's and Schelling's conceptions of knowledge, to which we now turn.

4.3.2 Two romantic conceptions of knowledge

At the heart of Hegel's philosophy of science lies his struggle against the romantic admiration of "immediate knowledge" and "intellectual intuition" as in the cases of Jacobi and Schelling. Let us thus consider their relations to Hegel's concept of science.

4.3.2.1 Jacobi's faith in "immediate knowledge"

Although Hegel rejects Jacobi's position towards "immediate knowledge" they share several thoughts, with which we shall begin. On the whole, Hegel agrees with Jacobi's critique of the Enlightenment regarding the abstract metaphysics mirrored in the purely categorical thought of anti-empirical rationalism or Spinozism. In Hegel's view, Jacobi justly recognizes that the purely rationalistic methods of pre-Kantian metaphysics were insufficient to reach knowledge about "the unconditioned", i.e. "the absolute" or "god". In spite of his sharp criticism of Jacobi, Hegel found a way to reconcile with him: he appreciates that Jacobi has in mind such a thing as *Geist* that has the power to eventually reach itself. Both Jacobi and Hegel have deep respect for the principle that the human mind is capable of

[56] Ibid., p. 423; 6/129.

knowing god, and Hegel even sees in such divine cognition the principle of the freedom of the human mind. In a review in the *Heidelberger Jahrbücher* (1817) on the occasion of the publication of the third volume of Jacobi's collected works, Hegel uses soft tones to show how Jacobi was in effect a precursor of Hegelian idealism[57] because he, like Kant, was able to show the "necessity of a completely altered view of the *logical*".[58] In *Lectures on the History of Philosophy* Jacobi surprisingly appears right at the beginning of the last section "Recent German Philosophy", even before Kant. Hegel appreciates most of all that Jacobi, as one of the first authors who were dissatisfied with Kant's "thing in itself", illustrates the dilemma that "one cannot enter Kant's system without the thing-in-itself, but with the latter one cannot stay in Kant's system".[59]

In spite of this, Jacobi plays mostly a negative role in the development of Hegel's concept of science. Hegel disagreed with the results of Jacobi's total rejection of the Enlightenment and his abolition of the cognitive achievements of *Vernunft*. Hegelian philosophy of science can be read as a direct attack on Jacobi's intuitionistic anti-conceptualist agenda. Kenneth Westphal is thus right when he argues that Jacobi has all along charged that the "consistent use of conceptual thought must ultimately repudiate the existence of nature, of values, of our bodies, and also of our freedom. [...] It would not be too much to say that the whole Hegelian philosophy amounts to a defense of conceptual thought against this charge".[60]

Jacobi's influence on Hegel had already begun in Hegel's early years after the publication of Jacobi's *Concerning the Doctrine of Spinoza in*

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[57] "*Hegel, [Über] Friedrich Heinrich Jacobis Werke Dritter Band*" (4/429–461).
[58] 4/455: "*die Notwendigkeit einer völlig veränderten Ansicht des* Logischen"; Cf., Pinkard, 2000, p. 388.
[59] Limnatis, 2008, pp. 110f.
[60] Cf. Westphal, 1989a, p. 139.

Letters to Herr Moses Mendelssohn (1785).[61] The philosophical considerations in this book led to the pantheism controversy and gave the young Hegel a strong impulse to go against Jacobi's thesis of the impossibility of reason to reach the absolute. Hegel critically analyzes Jacobi's conception for the first time in *Faith and Knowledge* (1802) where he rejects most of Jacobi's core ideas in the aftermath of his hermeneutic inquiry into Jacobi's texts. Later, in the *Encyclopaedia Logic* in the chapter "Third Attitude of Thought toward Objectivity, Immediate Knowledge" there is another detailed confrontation with Jacobi's central notions, more in the form of a conceptual analysis.

The object of Hegel's criticism is Jacobi's insistence on the necessity of "immediate knowledge" (*unmittelbares Wissen*) in the form of "faith" or "belief" (*Glaube*) regarding the cognition of god. Hegel, for his part, does not ignore the existence of such a thing as "immediate knowledge" or simply deny it. On the contrary, he acknowledges that every piece of knowledge can be given in the consciousness of individuals *im-mediately*, i.e. directly and without much thought, without complicated intentional states, without any inferences. At the same time he holds that this knowledge only *looks immediate* to us and that in truth the same knowledge can be given to us through "mediation" (*Vermittlung*) and thus be "mediated" (*vermittelt*), as a result of previous thought processes and based on conceptual proof. Hegel's motto in this issue is: "That which we now know immediately is consequently a result of infinitely many

[61] In Jacobi, F.H., *The Main Philosophical Writings and the Novell* Allwill, trans. G.D. Giovanni (Montreal: McGill University Press, 1994) pp. 173–252. For more details about Jacobi, Mendelssohn and the 'pantheism controversy' see Beiser, F.C., *The Fate of Reason. German Philosophy from Kant to Fichte* (Cambridge: Harvard University Press, 1987) pp. 44–108.

mediations".[62] He argues that abstract immediate knowledge is in fact only "natural, sensuous knowledge"[63] and this can also be pointed at Quinean naturalized epistemology.

Jacobi's endorsement of immediate knowledge was his response to what he considered to be the skeptical outcome of Spinoza's "atheism" and Kant's limitation of reason. Famously, this was his own *salto mortale*, his leap of faith.[64] Jacobi uses the term "faith" for any *indemonstrable belief*, that is, not only for uncertain and unverifiable belief, but also for axiomatic self-evident knowledge, like the logical or mathematical first principles of demonstration and justification.[65] His conception of knowing god by "feeling" aims at saving what he regarded as the endangered Christian culture in Europe after the rise of *Vernuftreligion* in the Enlightenment.

Hegel, in contrast, claims that the so-called divine knowledge, as the knowledge about the absolute, can be attained by what he calls "mediation" (*Vermittlung*) through concepts or instruction, and hence through a "doctrine" (*Lehre*). By "doctrine" Hegel does not mean dogmatism or catechism, but rather a systematic body of knowledge that is learnable and teachable. *Lehre*, 'teaching', is derived from *lehren*, 'to teach', and the Latin word *doctrina* means more or less the same. Since the term "doctrine" in English seems to refer to a rather dogmatic and rigid form of knowledge, the translator Elisabeth Haldane chose "a long continued culture".[66] This term, however, depends on how one understands culture can be very confusing, because it misses the significant issue of teachabilty and universality.

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[62] Hegel, 1995b, p. 421; 20/328.
[63] Ibid., p. 420 (20/326).
[64] Cf. Beiser, 1987, p. 91.
[65] Cf. ibid.
[66] Hegel, 1995b, p. 421; 20/326.

Hegel's criticism is that Jacobi's concept of immediate knowledge, his idea of faith, knows much less that it thinks it knows, for it knows about god only that there is god, just as any immediate knowledge knows only about the sheer being of something. Faith is not tantamount to cognition or conceptualization which relate to determined content and to universal determination. Hegel thus refers to immediate knowledge as very "meager" (*dürftig*) and to Jacobi's philosophy as "poor" (*arm*). He also expresses doubts regarding the role Jacobi gave to the "heart" (*Herz*) in the cognition of the good, because the "heart" of an individual is too subjective.[67]

Although Hegel's analysis detects skepticism in all the various forms of "subjective idealism", in Kant, Fichte and Jacobi, he emphasizes that Jacobi's philosophy of faith is nothing but pure "scepticism"[68] which principally allows only for belief, not knowledge. Hegel points out that Jacobi's strategy justifies only the "absoluteness of the finite"[69] and the "subjectivity of knowledge".[70] Hence, Jacobi devotes himself to the problematic "formal knowledge", that is, the empirically verifiable positivistic theses generated by the causality-based *Verstand*. Jacobi connects reality and thought without concepts, i.e. "in some inconceivable way"[71], for he believes that every true demonstration of knowledge has only to do with "similarities", not "reasons".[72] In his critique of Jacobi Hegel advocates a thoroughly rationalistic approach to science.

The core of Hegel's critique of Jacobi is the following: Jacobi lacks "*Wissenschaftlichkeit*",[73] i.e. scientificity, because he uses the language of

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[67] In the review in the *Heidelberger Jahrbücher* (4/446ff).
[68] Hegel, 1977b, p. 64; 2/298.
[69] Ibid., p. 104; 2/341.
[70] Ibid., p. 97; 2/333.
[71] Ibid.; 2/334.
[72] Ibid.
[73] 2/356, 376

"speculative ideas"[74] to describe the empirical realm. In this, Jacobi performs a classical category mistake. His anti-philosophical "empty thinking"[75] remains only "music" and "sound"; it does not mature and does not become "the articulated scientific word (Logos)".[76] Hegel is so dissatisfied with Jacobi's anti-logical approach that he equates the introducing of faith to philosophy with the getaway of reason "down" to finite subjectivity, the typical move of a "non-philosophical"[77] consciousness that only has "immediate certainty"[78] regarding particular beings, never universals. To sum it up, one of the main reasons for Hegel's task was the widespread epistemological belief in "finite" subjectivism.

4.3.2.2 Schelling's "intellectual intuition" and his "Sunday's children"

With the same vehemence that Hegel attacks Jacobi's "faith" in "immediate knowledge" as inappropriate for science, he criticizes Schelling's admiration of "intellectual intuition" and his concept of the absolute. Cynically enough, he describes Schelling's concept of the absolute as "the night, in which [...] all cows are black"[79], in which "all is one"[80] and lacks any distinction. This criticism was directed against their shared youthful motto *hen kai pan*, "one and all", and particularly against Schelling's view of the absolute as the "indifference point" between two poles. However, the young Hegel and Schelling did share some views about science and philosophy, with which we shall begin.

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[74] Ibid., p. 115; 2/354.
[75] Ibid., p. 110; 2/348.
[76] Ibid., p. 115; 2/354.
[77] Ibid., p. 142; 2/382.
[78] Ibid., p, 141; 2/382.
[79] Hegel, 1970, p. 9; 3/13.
[80] Ibid.

Like Hegel, the young Schelling regards philosophy as a science and science as a system.[81] Given Kant's impact on Fichte, and Fichte's on Schelling, it is not a coincidence that Schelling, just like Hegel later, holds such views in his early years. Schelling expresses his commitment to the Kantian und Fichtean task of scientifying philosophy by explicitly referring to philosophy as "the science of all sciences". Like Hegel, he criticizes Fichte's system for having merely created a "formal science" and even "superstitions".[82] Hegel openly cherishes in the *Difference* essay Schelling's inspiring novel conceptions and his original critique of Fichteanism. Even later, Schelling still unmistakably promotes and celebrates the status of philosophy as one great system set against a primordial chaotic state of logical contradictions.[83] He originally calls this pre-philosophical state "*Asystasie*", derived from α-σύστατον, and he compares it with the state of disharmony prevailing among too different contradicting systems. Hegel can also be said to have worked against such "asystasy", albeit in a different dialectical manner. Finally, Schelling's *Naturphilosophie* impressed the young Hegel to the extent that it showed him a possible way to do later his own Naturphilosophie, as well as what not to do.

Yet, in contrast to Hegel, in *System of Transcendental Idealism* (1800), the young Schelling refers to the true universal organ of philosophy as art (*Kunst*) and philosophy of art, not science. Later, again, unlike Hegel, Schelling would declare that philosophy is a science in the way that

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[81] In the lecture "On the Absolute Concept of Science" ("*Über den absoluten Begriff der Wissenschaft*"), the first of *Lectures on the Methods of the Academic Study* from 1803 (*Vorlesungen über die Methode des akademischen Studiums*).

[82] In Schelling's essay "*Darlegung des wahren Verhältnisses der Naturphilosophie zu der verbesserten fichte'schen Lehre*" (*Sämtliche Werke* vol 7, 1860, p. 26)

[83] In one of his *Erlangen Lectures* (*Erlanger Vorträge*) in 1821 entitled "On the Nature of Philosophy as Science" ("*Über die Natur der Philosophie als Wissenschaft*").

mathematics is, insofar as both are "*Vernunftwissenschaften*", i.e. "sciences of reason" or "rational sciences", the common name at his time for formal science or a priori science. In both references, we detect a major difference between the basic determination of Hegel's notion of science and Schelling's

Furthermore, Hegel entertains grave doubts about the scientificity and originality of Schelling's *Naturphilosophie*. He denies its status as a new science, because he believes that there exists already a similar kind of rational Aristotelian physics. The only original thing in it is the rendering of some new contemporary categories of thought, like *magnetism*, for the sake of a more creative language of logical inferences.[84] Hegel does not identify any particular problem with the contents of Schelling's *Naturphilosophie*, but on the whole, since Schelling's system emphasizes too strongly the naturalist element in the human knowledge, it actually neglects the "other side",[85] namely the "philosophy of spirit"[86] and thereby the priority of spirit in the epistemological question of the sociality of self-knowledge. The lack of equilibration between nature and spirit is described as nothing less than the "banishment" of all "scientificity".[87] Schelling's unscientific "formalism" in his *Naturphilosophie* is said to be worse than Hume's empiricism and to bring philosophy into contempt. To some extent, Hegel's philosophy of science is supposed to be the correction of Schelling's inclination to naturalism.

Hegel judges the scientific form of Schelling's system as "unripe", for it never presents "a completely executed whole"; it is not a well-organized

[84] 20/426.
[85] 20/451.
[86] Ibid.
[87] 20/452.

"scientific whole".[88] He complains that Schelling, a bit like Fichte, always starts his works anew, makes only general developments, and never comes to completeness. Hegel gives a psychological interpretation for the origin of this problem: Schelling is always "unhappy" with his previous results. Concerning the scientific content of Schelling's system, Hegel makes the critical comment that the long beginning of Schelling's system is mostly guided in its early years too stubbornly by the Fichtean principal of the "I" which is misleading because it refers both to the universal "absolute I" and to one's own "particular I". This problem led Hegel to neglect the idea that the "I" is the epicenter of the genuine philosophical system of thought and to rather adopt the concept of "consciousness" as the immediate phenomenon of "spirit".

The most severe problem that Hegel detects in Schelling's understanding of knowledge is the too high priority he ascribes to the method of "intellectual intuition" (*intellektuelle Anschauung*) since his *Ideas for a Philosophy of Nature* (1797/1803). *Anschauung*, i.e. 'looking at' or 'watching', is the standard German rendering of the scholastic term *intuito*, an 'immediate', non-discursive and non-conceptual grasp that is supposed to be as evident as direct sensual perception. For Hegel, such "intuition" is insufficient as a method of inquiry because it combines a higher level of subjective certainty with a lower level of objective justification. For Schelling, in contrast, although "intellectual intuition" belongs to the power of imagination, not to the logical method, it can lead to nothing less than the full cognition of the absolute. Hegel reads Schelling's endorsement of the imaginative faculty within the metaphysical question of the absolute as a skeptical result of Kant's epistemology which stresses the cognitive limitations of the human mind. Schelling's system

[88] 20/421ff.

gives the highest value to art, as the original sphere of "intellectual intuition", and later to religious mythology, but not to philosophy as a whole. Hegel argues that Schelling makes out of "intellectual intuition" nothing less than the ultimate "organ of all transcendental thought", while, in fact, "intellectual intuition" is only one kind of knowledge, namely *poietic knowledge* that creatively "produces" for itself its own object. Hegel accuses Schelling of wrongly taking this form of knowledge to be as valid as "cognition" (*Erkenntnis*), while in reality this knowledge is "arbitrary" and "coincidental", deduced out of reasons that are too "comfortable".

The crucial point of Hegel's critique is the basic paradox inherent in "intellectual intuition": "intellectual intuition" itself cannot be proven by any means, because one must intuitively believe in intuition as in an "assertion" of an "oracle". Hegel holds that true cognition is not generated through art, but through a set of logical categories, like the "idea" or "spirit".[89] The problem with the epistemological commitment to "intellectual intuition" is that not everybody can have the "artistic talent" and "genialness" of intellectual intuition. In Schelling's world, not everybody has the potential capability of conceiving the absolute, only "Sunday's children", as Hegel ironically notes.[90] The reason for this is that for Schelling philosophical knowledge is not learnable and teachable. In opposition to the elitist Schelling, Hegel believes that everybody has at least the right to ask for a "guide" to the scientific point of view and by means of a truly scientific *Lehre* can reach cognition of the absolute. Hegel's position can be thus read as representing a more democratic understanding of philosophical knowledge.

[89] 20/434.
[90] Ibid., p. 261; 20/428.

Hegel attacks Schelling's position as *unscientific* insofar as he does not insist on a rigorously scientific presentation of the absolute by conceptual demonstration and logical proof. Schelling's concept of science does not come close enough to Hegel's because he does not estimate the philosophical necessity of establishing a discipline such as "science of logic" that would provide logical tools for proofing the truth of "intellectual intuition". Hegel argues that the truth of Schelling's first principal, namely that the absolute is the identity of subjectivity and objectivity, remains an unproven "immediate truth", an axiom; and not the dialectical result of *Aufhebung*. Even when Schelling makes an effort to demonstrate his assertions in his *Journal of Speculative Physics* (1800-1801), he provides only formal proofs in a geometrical Spinozist manner.

Last but not least, there is an essential difference between Hegel's and Schelling's concept of science concerning the national character of science. This difference is due to Schelling's ideal of "German science". We can retrospectively learn about this crucial issue from Schelling's unpublished fragment "On the Essence of German Science" (1807)[91] of which Hegel was likely unaware, and if he had been, he would have barely shared Schelling's views there. This speech is, concerning the contents, a song of praise for "German science". Schelling speaks in a zealous tone of "German science" as the "heart" of the "German nation", who is deeply "religious" and has a special love of "metaphysical investigations". "German science" is presented as a historical product of the "German spirit" whose unique task since Luther is the "rebirth of religion". The most significant feature of "German science" is the acknowledgement of nature, not as a dead mechanism, but as "divine", "uncreated" and "lively". This is

[91] "*Ueber das Wesen deutscher Wissenschaft*", Fragment (Sämmtliche Werke vol 8, 1861, pp. 1–18).

notably nothing other than a form of Spinozism, yet "German science" rejects all "theories" and "empiricism". Schelling recognizes in science a religious-metaphysical turn, and at the same time he promotes a vitalistic view. What is particularly striking is the discovering of the national aspect, the 'German turn'. The German character of this science is not reduced to a language community or even a social phenomenon, but rather stands for some eternal primordial "fate" (*Schicksal*).

Schelling's nationalistic eulogy can be read historically as an apologetic attempt to react against Napoleon's victory over the Prussians at Jena, although, in his younger years, Schelling, like Hegel, was known to be a Francophile pro-revolutionary. Hegel, who continued to see himself more as a European, argued against particularistic political structures. He did not suddenly praise "German science" and "German spirit" to the skies, but rather universal "philosophical science" and "world-spirit". As a matter of fact, in his "Anthropology" in the *Encyclopaedia* Hegel does not hold back criticism of "the Germans" as "unclear thinkers" tending to "formalism".[92] Moreover, "Hegel characterized those who wish to celebrate *Deutschtum* as *Deutschdumm* (or, roughly, those who celebrate participating in authentic 'Germandom' as the 'Germandumb'). Phony 'Germanism' seemed to him both silly and dangerous".[93] What we can positively take out of this fragment is that Schelling's approach towards the national spirit, alongside his anti-empiricism and his unscientific *Naturphilosophie*, can perhaps explain why some contemporary readers of Schelling's philosophy of science, especially naturalists, are less inclined to look for their roots in Schelling, and prefer Hegel.

[92] 10/69.
[93] Pinkard, 2000, p. 311.

After analyzing the various triggers for Hegel's task of scientifying philosophy, let us briefly observe two different realizations of the task.

4.4 On the realization of the task

Hegel set himself the task of overcoming the problem he detected in the philosophy of his era: the lack of a "speculative" logical approach towards the absolute. He offers to fulfill this task by establishing a science that leads to the logical "pure science" and that he calls "phenomenology". The scientification through phenomenology consists in the denaturalization of our knowledge claims that became authoritative for us. The unpublished system drafts, the *Jena Realphilosophy*, were the first attempt to fulfill the task by developing a theory of the absolute within a wider dimension of an alternative theory of science. In the *Science of Logic* the task reaches a further level of fulfillment. Eventually, in the aftermath of new considerations in "Philosophy of Right", which led to the "Objective Spirit" in "Philosophy of Spirit", and the acknowledgement of the need to present a systematic "Philosophy of Nature", the task reaches its fulfillment for the first time in the *Encyclopaedia* from 1817.

The realization of Hegel's task has thus two aspects: the renewal of the term "phenomenology" as a general theory of science and the presentation of both "pure" and "real" philosophical sciences. The following is a short outlining of these aspects.

4.4.1 First realization: the renewed concept of phenomenology

"Phenomenology of spirit" became the official title for the first part of Hegel's "system of science". Its objects of inquiry are the stages of the development of *Geist* as the evolution of the collective self-consciousness

of mankind. This evolution is presented as a set of knowledge claims about various forms of knowledge experienced in the highest forms of reflective practices: religion, art and philosophy. Yet, the reason for Hegel's choice of the term "phenomenology" is unclear, as he mentions it only four times in the whole book and always in the phrase "phenomenology of spirit".[94] Without checking the history of the term, it is obvious that phenomenology means doctrine of appearances (*Erscheinungslehre*), for *phainomenon* means appearance (*Erscheinung*). Yet, unlike Reinhold and Fichte, Hegel himself does not use the title *Erscheinungslehre*, and we do not find in this book anything that resembles a conventional theory of appearance, but rather a topical reflection on the realities of "spiritual" *Entäußerungen*, institutions, schools of thought, religions and arts. To understand Hegel's use of this concept, we have to turn to its origin and observe its two equiprimordial roots that virtually co-determine Hegel's reinvention of phenomenology: the controversial theologian of Württemberg in Hegel's times, Friedrich Christoph Oetinger, who was known mostly in Germany, and the mathematician and logician of the Enlightenment, Johann Heinrich Lambert, who made the term popular in Europe .[95]

Oetinger was the first to introduce the concept of "phenomenological way of thinking" (*phœnemenologische Denckungs-art*) to the methodology of natural science.[96] This way of thinking stands in contrast to both the *geometrical-deductive* way of thinking and the *mechanical-causal*.

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[94] The phrase "phenomenology of spirit" appears in the title, twice in the "Preface", once at the end of the book (3/31, 39, 589) and once in the abstract (*Anzeige*).

[95] The following cannot be a full analysis of the term. For more details, see Bokhove N., *'Phänomenologie': Ursprung und Hintergrund des Terminus im 18. Jahrhundert* (1991) and Krouglov A., "*Zur Vorgeschichte des Begriffs der Phänomenologie*" (2008).

[96] In the dedication to his work *Die Philosophie der Alten* (Frankfurt and Leipzig: 1762). Oethinger already used the term *Phänomenologie* in his unpublished diaries in 1736 (Cf. Bokhove, 1991, pp. 139, 148).

"Phenomenological investigations" consist in direct observations of nature, using solely the immediate senses, and not microscopic, telescopic or anatomic investigations. In the dedication to his work *Die Philosophie der Alten* (1762) he refers to the works of physicians like Hippocrates, Herman Boerhaave and Johan Baptista van Helmont as "phenomenological". Oetinger's final goal is Pietistic: to show that all forms of biological life stems directly from god. For this reason, his phenomenological method is not empirical in the common sense of the term. In his view, chemistry is the phenomenological science per se, because it is capable of exposing the "vital power" (*Lebenskraft*) in every natural entity. The transcendental-theological conception of Oetinger's *vitalist phenomenology* let god ubiquitously appear as the idea of "life" and so strongly echoes the Böhmean school of thought.

Hegel does not mention Oetinger in his writings and it is possible that he neither encountered his writings nor was he exposed to his teaching. Yet, Oetinger taught in the *Tübingen Stift* and it is likely that Hegel was familiar with his doctrines.[97] His concept of phenomenology apparently had an impact on Hegel's methodological approach, the careful *Zusehen*, our paying attention to the experience of consciousness while "watching" it. Thus, Oetinger's approach may seem *prima facie* to be of the same kind of Hegelian speculative-holistic approach. However, Hegel renews the term insofar as his phenomenological investigation concerns the area of philosophy of consciousness, not only of nature. He repudiates such theological views that apotheosize nature and thus renounces the fundamental idea of Oetinger's vitalist theo-phenomenology.

[97] Oetinger' doctrines were popular in Würtmeberg at Hegel's time (cf. Jensen, 2012, pp. 19ff).

In contrast to Oetinger, in Lambert's general doctrine of science, his *New Organon* (1764), "phenomenology" loses its theological purpose and gains an epistemological-logical character, being defined as a "theory of seemingness [*Schein*] and of its influences on the correctness and incorrectness of the human cognition [*Erkentniß*]".[98] In this version of logic, the *Schein* is characterized as a "medium thing" (*Mittleding*), a "thing in the middle" between true and false. *Schein* exists, but it is always "false shine".[99] In order to discern between truth and what only seems like truth, Lambert plans a "transcendental optics",[100] a metaphysical science that presents *Schein* as *Schein*, including the causes of *Schein* and the means to overcome it.

Whether Hegel directly encountered Lambert's writings on phenomenology or not is unknown. He only mentions Lambert a few times, and in a dismissive way, as the "*trocken verständige*" algebraist[101] or as the mathematical logician who reduces logic to abstract inferences and mechanical calculations.[102] What is more relevant to Hegel's choice of the term "phenomenology" is the use of the term by Kant and his followers. Kant, who knew Lambert's concept of phenomenology, wrote to Lambert in 1770 about his own view of phenomenology as a science that rather prepares for metaphysics and for the question of the limits of sensuality.[103] The pre-metaphysical sciences according to Kant are dialectics as "*Logik des Scheins*" and analytics as "*Logik der Wahrheit*".[104] The Kantian "*transzendentaler Schein*" is a *Schein* not caused by sensual or

[98] Lambert, 1965, vol. 2, p. 228.
[99] Ibid., p. 217.
[100] Ibid., p. 220.
[101] 6/293.
[102] 17/363.
[103] Cf. Krouglov, 2008, p. 18f.
[104] Kant, *Critique of Pure Reason*, B 170.

psychological reasons, like in Lambert, but by "reason" itself.[105] Kant explicitly used the term "phenomenology" in his *Metaphysical Foundations of Natural Science* (1786) in the title of the fourth chapter: "Metaphysical Foundations of Phenomenology". In his "universal" and "pure" natural science, phenomenology is the "pure doctrine of movement" that deals with the transformation of movements into objects of experience.[106] In the legacy of Lambert and Kant, Reinhold entitled his essay about the "philosophy of the empirical" *Elemente der Phänomenologie*[107] and this inspired Fichte to name the second part of his *Wissenschaftslehre* "*Phänomenologie: Erscheinungs- und Scheinlehre*".[108]

While continuing this tradition in his own way, Hegel's *Phenomenology of Spirit* completely modifies the conception of phenomenology. Firstly, in distinction to his precursors, Hegel's intention is not to design phenomenology of nature, like the Reinholdian "*reine Naturphilosophie*"[109] that investigates purely natural objects, but rather phenomenology of spirit that investigates forms of self-knowledge. As a re-scientification program, Hegelian phenomenology demonstrates the process of denaturalizing our knowledge-claims about knowledge. Secondly, Hegel does not aim at designing a general theory about what is *Schein* or *Erscheinung per se* as Reinhold's and Fichte's phenomenology do. Whereas for the purpose of representing untrue shared knowledge claims, Reinhold distinguishes between *Schein* and "true experiences",[110] Hegel aims, for the same purpose, at the epistemological destruction of both *Erscheinung* and

[105] Cf. Krouglov, 2008, p. 23.
[106] Cf. Kant, *Metaphysical Foundations of Natural Science*, A136.
[107] Cf. Weckwerth, 2000, p. 97.
[108] Hegel apparently did not have the chance to hear Fichte's lectures which were held in Berlin in 1804 (Cf. Bonsiepen, 2011, p. XVI; Krouglov, 2008, p. 24f).
[109] Bonsiepen, 2011, p. XIV; Krouglov, 2008, p. 24.
[110] Weckwerth, 2000, p. 98.

Schein. For this reason, Hegel employs, almost interchangeably, the terms *Erscheinung* as "mere appearance" and *Schein* as "false" or "empty appearance". Hegel's use of the term "phenomenology" is indeed original, to some even baffling,[111] since he does not use the term phenomenon[112] and does not explain exactly what *Schein* or *Erscheinung* is.

The ultimate motive for Hegel's choice of the term "phenomenology" may remain veiled and unknown. However, a little light can be shed on this question by pointing out that his phenomenology, as a scientific investigation, neither appeals to appearances as chemical appearances of matter, nor to the category of appearance in general, but instead to appearances of knowledge structures which consciousness forms when it relates to worldly objects *as to itself*. Phenomenology investigates the immanent deficiencies of these structures, which are embodied in past schools of thought and shared ways of thinking, and shows a set of difficulties and contradictions. Such a set exhibits as a whole a form of *Denken* that aims at exposing a language-oriented logic-based truth. At the same time, as the act of *denken*, it is essentially and thoroughly historical in the sense of *geschichtlich*, multilayered. The *Geschichtlichkeit* of the truth of the being corresponds to the self-realization of the *Geist*. Insofar as the immediate natural consciousness, the not-absolute I, means to Hegel an embodiment of the spirit, the meaning of appearance goes beyond the mere appearance of sensual entities, of things that are appearable in themselves. Instead, it indicates the appearance of that which does not appear, of the sensually unperceivable. The phenomenology expounds the series of the

[111] Krouglov takes the question of Hegel's use of the term phenomenology to be one of Hegel's biggest "enigmas" and "unresolved" problems (2008, p. 30).

[112] At the time before *Phenomenology of Spirit*, Hegel was also affected by Goethe's idea of *Urphänomenon*, i.e. pure phenomenon or primal phenomenon, from his "doctrine of colors" (*Farbenlehre*), as Hegel attended some of his experiments (Cf. Bonsiepen, 2011, p. XIV).

Gestaltungen des Geistes as the series of only-appearing, *erscheinende*, and hence insufficient sequences within the framework of *Geist* as a whole.

In the *Encyclopaedia*, Hegel's second realization of his task, the "phenomenology" loses the function of being only a science towards science, as it becomes a part of "philosophy of spirit" which does not necessarily precede the *Logic*. Still, the concept of phenomenology in the *Encyclopaedia* preserves the basic meaning that Hegel attributed to it, namely as being the science of the *Geist* as *erscheinend*, ergo as containing untrue moments. Hegel explicitly refers to phenomenology as "the part of science" that no longer deals with the "natural spirit", as in his "Anthropology", but presents the "appearing spirit" in its self-relationality. The denaturalization of spirit is completed only after the chapter on "Phenomenology", namely in the "Psychology", where the spirit becomes the spirit *as* spirit in its whole and hence "actual spirit".

4.4.2 Second realization: "pure" and "real" science

The *Encyclopaedia* is Hegel's second comprehensive realization of his task and hence its re-fulfillment. In these lectures, Hegel presents the division of the "philosophical sciences", the metasciences, into (a) logic as "pure science", the science of categories of thought insofar as they are grounded and articulated in the practical use of language, and (b) two "real sciences" (*Realwissenschaften*), (1) science of nature, including mechanics, physics, biology, meteorology, geology, and (2) science of spirit, including anthropology, phenomenology, psychology, along with the sciences of moral, law, state, art, religion, and philosophy. The method of these metasciences, as second-order sciences, applies the same kind of justification based on logical laws of thought, and not a first-order analysis of the given.

Hegel's division, however, raises the obvious problem of the much-debated, allegedly unsolved dualism about the two "sciences of the real". If there is not any essential methodological difference, and if there are not two different substances, then why should there be two differentiated types of sciences? The answer is the following: nature is what happens independently of our actions, whereas spirit is the form of self-conscious action including the form of knowledge about nature and spirit. On the horizon of this problem we encounter the Hegelian concept of the *self-realization of the idea*: spirit is not a thing in the material-physical sense, but a concretization of "the idea", a purposive organization of relevant categories of thought and their "presentation" (*Darstellung*). Science as project and process is the collective conceptual development of ideas. Categories like being, nothing, reality, something, idea etc. are treated by Hegel as a chain of successive solved contradictions leading from one to the other. Hegel calls this movement the "self-motion" (*Selbstbewegung*) of the logical determinations, a form of "liveliness" (*Lebendigkeit*). Hegelian metascience presents thus a version of the physics of ideas.

The realization of Hegel's task in the *Encyclopaedia* seems to carry typical outlines of modern metascience to the extent that Hegel can count as the avatar of modernity in philosophy of science. This is how Jean-François Lyotard, for example, interprets it. In *The Postmodern Condition* (1979) he claims that the Hegelian task of philosophy, as realized in the *Encyclopaedia*, is to produce "a language game that links the sciences together as moments in the becoming of spirit", a "rational narration, or rather a metanarration".[113] For him, this metanarrational task is too bombastic and dangerous; nothing less than the "project of totalization".[114]

[113] Lyotard, 1984, pp. 33f.
[114] Ibid., p. 34.

This general postmodern worry about Hegel's quasi totalizing metascience stems, on the one hand, from what is perceived as the all-encompassing compelling structure of the *Encyclopaedia*, and on the other, from skepticism about how a book or a lecture can turn anything into science. Therefore, from another perspective, it was argued against Hegel that the formation of consciousness into science "is not merely the task of a philosophical work", but "a result of the cultural history of mankind".[115] Lyotard himself prefers to talk about the particular sciences, as he knows nothing about the generic "concept" of science. Therefore, he does not understand why such scientification is necessary at all.

The understanding of Hegel's task can be deepened by addressing plausible objections to his task, as we shall do in the next section.

4.5 Criticisms of Hegel's task

Hegel's idea of philosophy as a systematic science has become controversial and attracted criticisms, not only from the analytic philosophy, has also from German philosophy. It is now generally accepted that the last great philosophical system to appear as science was constructed by Hegel. Simultaneously, one tends to reject the very idea of philosophical system as a mere construction and as a relic of Hegel's era. In opposition to Hegel's task it was asserted that we now need "less philosophy" or that philosophy has died. In the following we will deal with exemplary post-Hegelian rejections of Hegel's task.

[115] Siep, 2000, p. 60.

4.5.1 Philosophy is not science

One of the strongest oppositions to Hegel's program to turn philosophy into a science is the advocating of the diametrically opposed view, namely that philosophy is not a science in any respect, not even a metascience. One of the major proponents of such view, who has explicitly, recurrently and zealously reacted against Hegel's task, is Heidegger. We pay attention to Heidegger's criticism, as we are reminded by his words that "a thinker is more essentially effective where he is opposed than where he finds agreement".[116] After withdrawing from the Kantian-Fichtean-Hegelian-Husserlian idea of shaping philosophy into a rigorous science, Heidegger states in several lectures that philosophy is not a science, in "Introduction to Philosophy" (1928/29),[117] in "The Fundamental Question of Philosophy" (1933)[118] and in "What is called Thinking?" (1951/52).[119] What has led him to this antithetical position?

The origin of Heidegger's view can be found in Nietzsche's critique of modern science in his "Attempt at a Self-Criticism" in *The Birth of Tragedy* (1886). Nietzsche states there that in his early years he dealt with "a *new* problem", namely "*the problem of science itself*, science considered for the first time as problematic, as questionable".[120] By problematizing the idea of science in general, Nietzsche also intends to put philosophy's pride as a self-assured science in a severe crisis. Since Heidegger takes rather the Nietzschean problematization of science – and not the Hegelian – to be the grounding act of the critique of modern science, it is obvious that Hegel's task of scientifying philosophy would take quite a beating. Retrospectively,

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[116] In "What Is Called Thinking?" (Heidegger, 1968, pp. 39f).
[117] Cf. Heidegger, 2001, p. 18.
[118] Cf. Heidegger, 2010, p. 7.
[119] Cf. Heidegger, 1968, p. 8.
[120] Nietzsche, 1967, p. 18.

one can say that it was Heidegger who made sure that the damage Nietzsche's thought sustained to the positive status of science in Hegel's task will be unforgettable.

Relying on the Nietzschean critical fundament, Heidegger undertakes the task of demonstrating exactly the opposite of Hegel's task, namely that "*Philosophie ist keine Wissenschaft*", neither in Hegelian sense, nor Husserlian. Drawing on the fundamentals of Greek philosophy, Heidegger refers to philosophy as a search and research. Like in Aristotle's "first philosophy" or in the Platonic "love" of wisdom, philosophy is "a questioning [...] concerned with all beings".[121] Heidegger explicitly attempts to go, in his thinking of thinking, beyond Hegel by means of a "*historical confrontation with Hegel*".[122] What Hegel supposedly forgets, the un-thought in his project, is that "science does not think",[123] whereas philosophy does, because "[p]hilosophers are *the* thinkers *par excellence.* They are called thinkers precisely because thinking properly takes place in philosophy".[124] Heidegger's dictum that the "*Wissenschaft denkt nicht*" is only comprehensible, if one seriously takes his strict thought that *Wissenschaft* essentially *weiß* and only *Denken* essentially *denkt* and so on.

In his offensive against Hegel, Heidegger prophesizes that the "thinking that is to come can no longer, as Hegel demanded, set aside the name 'love of wisdom' and become wisdom itself in the form of absolute knowledge".[125] As a matter of fact, Heidegger confuses here the title "love of wisdom" with the phrase Hegel himself used, "love of knowledge". In this way he reminds us that Hegel sets great value upon the question of

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[121] In the lecture "The Fundamental Question of Philosophy" (Heidegger, 2010, p. 7).
[122] Ibid., p. 11.
[123] In *What is called Thinking?* (Heiddegger, 1968, p. 8).
[124] Ibid., pp. 4f.
[125] In "Letter on Humanism" from 1946 (Heidegger, 1998, p. 276).

knowledge, and perhaps too little upon the question of translation. Even if we cannot be sure if Hegel was fully aware of his imprecise translation, Heidegger's own imprecise citation can at least tell us something concrete about his skeptical approach to science. The motive for Heidegger's critique is his wish "to break the habit of overestimating philosophy and of thereby asking too much of it".[126] He suggests: "What is needed in the present world crisis is less philosophy, but more attentiveness in thinking; less literature, but more cultivation of the letter".[127]

Heidegger is however aware of the radicality of his own verdict concerning the 'unthinking' science, sensing that it might fully cut off philosophy from science. He thus clarifies his argument: "Philosophy is indeed the *origin* [*Ursprung*] of science, but for this very reason it is *not* science – not even a primal science [*Ur-wissenschaft*]".[128] This means that Heidegger in fact also believes that philosophy is necessary for science and even constitutive of it. In Heidegger's figurative logic of origins, pre-Socratic philosophy is the oldest origin (*Ursprung*) of science, so that science 'sprang' out of philosophy. Obviously, at the moment he became rector of the Freiburg University, he felt the need to justify the scientific status of philosophy and therefore he even argued that: "All science is philosophy, whether it knows and wills it or not. All science remains bound to that beginning of philosophy".[129] The genesis of science out of philosophy lies in philosophy's inceptive experience of the being as a whole. Heidegger even uses the predicates 'science' and 'scientific' as positive properties: "Phenomenology is more of a science than natural

[126] Ibid.
[127] Ibid.
[128] In "*Einleitung in die Philosophie*" (Heidegger, 2001, p. 18).
[129] In "Rectorship Adress: The Self-Assertion of the German University" from 1933 (Heidegger, 2009, p. 110).

science is"[130] and "philosophizing qua transcending" is even "more scientific than any science can ever be".[131] This shows that, in spite of his critique of Hegel, Heidegger himself does acknowledge in philosophy an undeniable basic link to the essence of science. This goes so far that he declares that the term "scientific philosophy" is superfluous and misleading, just like that of a "round circle".[132]

For Wittgenstein too, philosophy is not science because "philosophy is not a doctrine [*Lehre*] but an activity".[133] For Hegel, philosophy, as the self-knowing of the spirit, is an activity too, but this does not contradict the fact that over time doctrines emerge in philosophy, for philosophy, as *Lehre*, is essentially teachable (*lehrbar*). However, in order of course not to become dogmatic, such doctrines ought to be investigated, criticized, altered and reshaped by philosophy itself. This would be a desirable act of self-reflection. Therefore, Hegel deals with doctrines such as the "doctrine of concept" and the "doctrine of judgment". The seeming contradiction between doctrine and activity can be overcome by acknowledging that the praxis of constructing and reflecting over doctrines, whether one agrees with them or not, is a form of cognitive activity in the broad sense, of theoretizing and thinking.

For Wittgenstein, Philosophy is not science either, because philosophy is occupied with the most trivial things, whereas science teaches "new facts".[134] His disenchanted view of the task of philosophy is expressed in a modest tone: "Philosophy is not, like science, building a house. Nor are we even laying the foundations of a house. We are merely 'tidying up a

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[130] In *Zollikon Seminars* from 1966 (Heidegger, 2001a, p. 211).
[131] In "*Einleitung in die Philosophie*" (Heidegger, 2001, p. 219).
[132] Ibid.; cf. ibid., pp. 16, 221.
[133] In his *Tractacus* (Wittgenstein, 2010, p. 44, 4.112).
[134] In *Cambridge Lectures* from 1930–32 (Wittgenstein, 1980, p. 26).

room'".[135] This epistemological-realistic thought is, however, not directed against Hegel, but against the traditional positivism of the so-called scientific philosophy and its general theory of science within the legacy of Helmholtz and Mach, Schlick and the Vienna Circle.

In distinction to this criticism, Eugen Fink's ontological-phenomenological interpretation of *Phenomenology of Spirit* reasonably wishes to remind us that Hegel's idea of philosophy as science does not mean "the orientation of philosophy towards the methodological style of existing sciences, but rather the radicalization of philosophy itself, a decisive and harder devotion to its essence as world wisdom".[136] Fink is certainly right, but, if it is to be precise, it should simply read: wisdom, not only world-wisdom, i.e. not only worldly wisdom, but also wisdom about the world as a whole. Perhaps he did not know this place in the text where Hegel himself explicitly rejects the conception of philosophy as only "world wisdom" and prefers the conception of "divine" wisdom because for Hegel the object of philosophy, like that of religion, is "God and nothing but God" and thus: "Philosophy is not world wisdom, but cognition of the nonworldly [...], of what is eternal, of what god is".[137] As Fink plausibly interprets, Hegel rejects any one-sided interpretation of being as only that which remains (*das Bleibende*) or as only that which becomes (*das Werdende*), because Hegel thinks of the entanglement of both.[138] But this is because Hegel treats philosophy as the question of being as a whole, not only as inner-world being. Worldly knowledge (*Weltwissen*), as a first-order science, as *Sachwissenschaft*, must be distinguished from the content

[135] Ibid.
[136] Fink, 1977, p. 15.
[137] In *Lectures on the Philosophy of Religion* (Hegel, 1988, p. 77; 16/28).
[138] Cf. Fink, 1977, p. 40. With Heidegger in his mind, Fink reads Hegel's philosophy as developing the question of the being (*das Sein*).

of metascience, as knowledge about what the world is from the so-called god perspective. Fink thus rightly concludes that Hegel's task does not aim at positivistic science, for it is not "a merely subsequent thinking-together of already pre-thought thoughts-of-being", i.e. not "a compilation of antique and modern ontologisms".[139] Hegel himself declares that *Phenomenology of Spirit* is not about leading a non-knower "to an already existing knowledge" (*zu einem schon vorhandenen Wissen*) and thereby its "Introduction" is not like an introduction to a particular science.[140] Finally, to close a circle, Fink finds an original way to interlink Hegel with Nietzsche, suggesting that Hegel's task ought to be read in a rather Nietzschean light, as "productively developing a new problem, a new shape of the old question of the thinking humanity".[141]

Another contemporary way to justify that philosophy is not science, and hence to attack Hegel's task, is to argue that philosophy belongs to the humanities and that the humanities is not science. Let us thus observe this argument.

4.5.2 Humanities is not science

The Hegelian program of philosophy as science can be dismissed on the basis of the dualistic terminology *humanities/science* that lets philosophy fall under humanities and at the same time locates the humanities outside science per definition. This conceptual distinction, which is taken for granted by the common *doxa* of science, is more evident in the English language than in German or French, where both terms contain the word science: *Geisteswissenschaft* and *Naturwissenschaft, sciences humaines*

[139] Fink, 1977, p. 35.
[140] Cf. ibid.
[141] Cf. ibid., p. 33.

and *sciences naturelles*.[142] The sharp humanities/science division conceals the epistemological possibility of the humanities to be characterized by the mediating concept of science, so that the disciplines of the humanities dealing with languages, literature, religion and philosophy are at best designated as *soft sciences* or *branches of study*. In this way, the humanities appear to be epistemologically inferior.

I suggest that in this distinction lies one of the conceptual origins of the ongoing, existential humanities crisis which intensified in recent decades due to the declaration of the "two-culture gap"[143] and the "science wars".[144] As we have seen, Hegel's concept of science, understood correctly, can be taken as a possible response for this conceptual crisis, because Hegel does not simply exclude and tear the human and the spiritual from the realm of science, but considers both the natural and the human/spiritual as appropriate objects of philosophical-scientific inquiry. He was able to ground their logical unity and bring them together in a meaningful way. In his terminology, they principally both form together an "identity of identity and non-identity". The proper way to understand the general meaning of science is neither monism nor dualism, but rather mono-dualism or dual-monism.

The concrete problem behind this terminological division is that, whereas the so-called STEM (sciences, technology, engineering and

[142] However, the use of the term humanities spreads out rapidly. The *Freie Universität Berlin*, for example, accommodates, since 2008, the "Dahlem Humanities Center".

[143] Charles Percy Snow coined this term in *The Two Cultures and the Scientific Revolution* (London: Cambridge University Press, 1959). Unsurprisingly, one popular response to his thesis that the split into the two cultures is an obstacle for solving the world's problems was Edward Osborne Wilson's thoroughly naturalistic attempt to unify them in *Consilience: The Unity of Knowledge* (New York: Random House, 1998).

[144] The "Science wars" between supporters of "objective truth" and those of "social construction" culminated in the "Sokal-Affair" (1996) with the faked article of the physicist Alan Sokal in *Social Text*; cf. Jay Labinger's and Harry Collins' *The One Culture? A Conversation about Science* (Chicago: The University of Chicago, 2001).

mathematics) enjoy great success and popularity inside and outside academia, the humanities stands accused of not increasing the national income, like science does, and thus of being socially superfluous and unworthy of support.[145] However, the reason for this crisis is not purely financial. The reason is the naturalistic ideology that does not acknowledge the part of the humanities in the inquiry into the basic cognitive elements of thought. The humanities partly create preconditions and frameworks for the language and structure of the particular sciences. They investigate that which makes positive science possible in the first place and suggest a critical or contemplative way to do self-reflection in order to reach understanding of meaning, not just explanations of the natural world.

The problem with the sciences that call themselves 'humanities' is that they partly do not take themselves to be science for various reasons, namely for their allegedly non-empirical method, their subjectivity, inexactness and uncertainty. The humanities crisis is thus brought on, at least partly, by the concept humanities itself as well as by the misunderstanding of the concept science. Per definition, the object of the inquiry of the humanities is the human condition, not nature, but also not "being as such" and not "absolute spirit". *Geisteswissenschaft* that reduces itself only to "humanities" is thus already forlorn. The distinction humanities/science reveals a rupture in thought. What is actually at stake here is the question of truth. The common view holds that only the empirical scientific method can reach the objective truth, which is the 'real' truth, whereas the humanities reach only a non-scientific subjective truth in the form of interpretations. If philosophy belongs only to humanities, then it deals only with the truth of the human condition or presupposes only the

[145] One embodiment of this crisis is the immense budget-shortage in the UK in 2010 as a result of the privatization of the humanities in publicly funded universities.

human viewpoint and therefore cannot count as a proper science of the truth as a whole. In this case, Hegel was simply wrong. But if philosophy goes beyond this, then it does not appertain only to the humanities, but to another category such as *phenomenological science*, *universal ontology* or *speculative logic*. In the horizon of Hegelian understanding of science, the two perspectives of the human/non-human compose one unity, as they are only two different manifestations of the one and the same idea.

Now, if we only direct our gaze towards academia and university, we might think that science and philosophy only exist there. This conclusion contradicts the fact that some philosophers were not professors – a fact that is believed to speak against the objective of Hegel's task, as we will see in the next section.

4.5.3 Some philosophers are not professors

Pinkard suggests that Hegel's task of turning philosophy into science, and that means for him academic science, contradicts Hegel's own perspectives on philosophy. He argues that Hegel's conclusion is that "the final end of life as philosophy is not that of being a philosophy *professor*", but "something like contemplation",[146] and that therefore "[...] this conclusion runs at odds with Hegel's own program of turning philosophy into a *Wissenschaft*, that is, into the kind of specialized discipline that can be pursued only by university professors".[147] To prove his point, Pinkard mentions the historical fact that there are philosophers who were not philosophy professors like Benedict Spinoza, David Hume, Moses Mendelssohn and Joh Stuart Mill.[148] In support of Pinkard, one can say that

[146] Pinkard, 2012, p. 108.
[147] Ibid., p. 114, remark 48.
[148] Ibid, pp. 108f.

there are only few significant extra-universitary scientific institutions. The existence of modern science indeed depends on a special form of institutional recognition that evolves through the formation of the many universities which copy the generic systems and methods and pass them on.

However, Hegel has never claimed that philosophy has always been done by university professors and he included many non-academic philosophers in his *Lectures on the History of Philosophy*. To say that philosophy ought to be taught at university does not imply in any respect that every individual ought to teach it. To be sure, Hegel honors the scientific project of the modern university, but his system in the *Encyclopaedia* can be read a master plan for changing the structure of the sciences that are taught at university. He has subscribed himself for the Humboldtian ideal of "teaching and research" as a unity, but he had also developed influential ideas regarding the reform of teaching philosophy in High School which he shared as a headmaster with Friedrich Immanuel Niethammer, the Central Commissioner of Education in Bavaria. Even though university is for Hegel the organ that regulates and canonizes science publicly and for the public, it would be completely misleading to conclude that to make philosophy scientific means to him – the philosopher, not the person – to become a "philosophy *professor*".

4.5.4 Hegel's Eurocentrism

Several recent Hegel scholars accuse him of Eurocentrism.[149] Whereas some are partly aware of their creeping anachronism and claim that his

[149] Althaus, *Hegel: An Intellectual Biography* (2001); Tibebu, *Hegel and Anti-Semitism* (2008) and *Hegel and the Third World: The Making of Eurocentrism in World-History* (2011); Pinkard, *Hegel's Naturalism: Mind, Nature, and the Final Ends of Life* (2012): Kimmerle, "Hegel's Eurocentric Concept of Philosophy" (2014).

allegedly Eurocentric worldview was not his alone, for it reflected the basic views of the received western philosophy, some accuse him of being the father of modern Eurocentrism, if not the Eurocentrist per se. Horst Althaus, for example, designates Hegel as being "thoroughly Eurocentric"[150] and Teshale Tibebu dedicates a whole work to prove Hegel's Eurocentrism. Tibebu also wrote on Hegel's racism[151] and he mentions works on Hegel's sexism.[152] Likewise, Pinkard argues that although Hegel understood that:

> "[...] philosophy, as *Wissenschaft*, can no longer concern itself exclusively with specifically European matters. [...] his own efforts are clearly marred both by his own lack of understanding about the ways of life of China, Africa, India, and Japan and equally by his own ill-formed prejudices about all of them".[153]

Heinz Kimmerle suggested that Hegel's Eurocentric concept of philosophy is "typical of the European-Western philosophy as a whole" and must be contrasted with an "intercultural concept of philosophy".[154] These authors raise serious doubts as to the universal character of Hegel's concept of science, which is presupposed by his task of scientifying philosophy. They contest whether Hegel could even fulfill his task at all, if he had prejudices about non-western cultures.

Undoubtedly, the issues of racism and sexism must be thoroughly investigated and seriously condemned. Yet, the accusation of Hegel being

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[150] Althaus, 2000, p. 175.
[151] In his *Hegel and Anti-Semitism* (Pretoria: University of South Africa Press, 2008).
[152] Tibebu, 2011, p. xiii.
[153] Ibid., pp. 194f.
[154] Kimmerle, 2014, p. 117.

an Eurocentrist about science can correspond to a problematic form of anachronism, as it stands to question whether Hegel could be Eurocentric in the sense that we attribute to this term today. Individuals who lived in a different cultural era cannot have exactly the same values one shares nowadays. Being one of the first philosophers to speak of the emergence of *one world-history* out of the activity of *one world-spirit*, Hegel is in fact much more a Universalist than an exclusionist Eurocentric. He does not praise only European thinkers in his *Lectures on the History of Philosophy*. Is he then a 'false universalist'? His conception of philosophy is universal enough to contain some horizon of understanding from which it is possible to grasp humanity as a whole. Although the question of anti-universalist Eurocentrism cannot be marginalized and pushed aside, one can claim, as Andrew Buchwalter does in his response to this issue, that Hegel's account of history, although it assigns priority to Western culture, "also challenges one-sided views of European modernity".[155] This means that Hegel does not simply cherish everything that comes out of Europe, but looks for the universal ideas in it.

The "universal" in Hegel is not global in the geographical or statistical sense, a sense which is perhaps legitimate under certain circumstances in some disciplines of natural science. The picture of the world as a globe certainly seems to make the idea of the universal more perceptible. But "general knowledge" (*allgemeines Wissen*) in Hegel's terminology does not mean universal knowledge in the sense of a certain property that is attributed to all persons or all particular things on earth. It rather means general knowledge in the sense of generic and categorical, as it has a wide logical validity and is acknowledged as a conceptual norm. Every thinking being can potentially have this kind of knowledge and it is supposed to be

[155] Buchwalter, 2009, p. 88.

accessible to anyone because it appeals to the common normal case.[156] This universality is expressed in the ability to share knowledge and think together with other thinking beings, that is, in the accessibility of thought to foreign minds and foreign languages. The essence of the "universal" ought to be grasped beyond the context-dependence of any specific spatiotemporal existence, because the universal form of thought, which reveals the essence of beings and their material existence, can become intelligible and hence accessible to self-conscious beings. Even standard definitions of science do not demand that each science must deal with the whole globe, but stress that the universal character of science consists in its global validity claim, which means, like Hegel thinks, that science is a "systematic search for knowledge whose validity does not depend on the particular individual but is open for anyone to check or rediscover".[157]

Even if we do not agree with much of what Hegel wrote about the history of cultures and races, it does not mean that philosophy itself cannot be a science. Hegel perhaps did not completely fulfill his plan, but this alone still does not imply that he was wrong about the choice of his task. The fact that we can reject some parts of Hegel's theory only affirms for us that we are dealing with fallible scientific sentences.

4.5.5 The death of philosophy

A last, but not least, typical response to Hegel's task is a bad combination of one-sided scientism and one-sided naturalism that leads to the belief that only natural science matters and philosophy is superfluous. Consistent

[156] Cf. Stekeler, 2014, pp. 348f.

[157] Hansson, S.O., "Science and Pseudo-Science" in *The Stanford Encyclopedia of Philosophy*, ed. E.N. Zalta (www.plato.stanford.edu/archives/spr2015/entries/pseudo-science, 2015).

naturalistic theory of science tends to declare that "philosophy is dead".[158] The purported natural death of philosophy is a result of sophisticated self-termination due to a naturalistic ideology. A physicist who relinquishes philosophy seems "like somebody who has seen thousands of trees but has never seen a forest".[159] But not only naturalists declare the death of philosophy. In the aftermath of Hegel, Dilthey also states that he stands in front of the "ruins of philosophy".[160] The contemporary diagnosis that "philosophy is dead" truly reflects the state of philosophy in the faculties in which naturalism is celebrated as the guide line for philosophy of science. The concealed true problem is that the particular sciences are merely positive sciences that inexplicitly and uncritically presuppose a set of already philosophically processed concepts, so to say, a whole received metaphysic. It is precisely for that reason that Heidegger ventures to embrace Aristotle's physics as a still-relevant philosophical work.[161]

The absolutely naturalist point of view, the "natural consciousness", holds that there is no need for further philosophical thinking and hence for going beyond any already existing scientific answers given to the

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[158] Hawking, 2010, p. 13: "How does the universe behave? What is the nature of reality? [...] Traditionally these are questions for philosophy, but philosophy is dead. Philosophy has not kept up with modern developments in the sciences, particularly physics".

[159] Albert Einstein insists on the significance of philosophy: "So many people today – and even professional scientists – seem to me like somebody who has seen thousands of trees but has never seen a forest. A knowledge of the historic and philosophical background gives that kind of independence from prejudices of his generation from which most scientists are suffering" (cited in: Howard, 2006, p. 67, from a letter to Robert Thornton, 07.12.1944, Einstein Archive, Hebrew University, Jerusalem).

[160] Dilthey, 1960, p. 5. Original: 1887.

[161] In *The Principle of Reason* from 1955/56 (Heidegger, 1991, pp. 62f): "The Physics is a lecture in which he seeks to determine beings that arise on their own, τὰ φύσει ὄντα, with regard to their being. Aristotelian 'physics' is different from what we mean today by this word, [...] Aristotle's 'physics' is philosophy, whereas modern physics is a positive science that presupposes a philosophy."

fundamental philosophical questions. This is the basic thought of positivism. The sciences appear to it neither as an essential part of philosophy in the broadest sense, nor as the offspring of philosophy, but as some given entity totally separable from philosophy, the *orphan of philosophy*. In this mode of givenness, the fact that lively philosophy no longer exists does not seem to bother the other sciences or to cause their own death. Rather, it only affirms the being alive and the supposedly high necessity of some particular sciences. The real tone of the popular maxim "philosophy is dead" is in truth much less concerned with the problems of philosophy than with the glorification of the natural sciences. It attempts to constitute another maxim, namely 'physics is alive' and 'physics is the queen of the faculties', exposing thus its own true fear about its mortal future, a lucid basic *angst* about its being, an existential fear of a kind that physics, even if it is already a senior science, must not have.

The extremeness of such a positivistic position, of such rampant scientism, posits itself outside of philosophy of science, for if philosophy is, from this point on, a dead body, then the organ 'philosophy of science' must be dead as well. As such, the thinker of the death of philosophy has rightly proclaimed at least his own philosophical 'natural death'. The self-position against philosophy makes one's own science a merely positive science that adopts traditional metaphysical terms, even though the physicalist scientists surely would not think of themselves as metaphysicians. The possibility of philosophy as science confronts us thus with a need for rethinking the goal set for philosophy of science. I have attempted to reach such rethinking by a critical deliberation on the Hegelian approach to philosophy of science. Now it is time for final thoughts.

5. Final thoughts

This study set out to explore the character of Hegel's philosophy of science. The results show that Hegel develops philosophy of science *avant la lettre*, yet 'philosophy *of* science' not in the common sense of *genitivus obiectivus* that refers to science as some *given object* of inquiry, but rather in *genitivus subjectivus* referring to the inquiry science performs with itself, to knowledge about knowledge, to self-knowledge. Such speculative science of science takes science, including modern science, to be a self-thinking thought, a form of *noesis noeseos*. In contrast to other modern theories of science, Hegel's metascience is unique insofar as it is neither descriptive, nor prescriptive, neither purely empirical, nor purely rationalist. Its goal is to scientify the romantic philosophy of his time which believes in the simple immediacy of knowledge, while denying the necessity of the hard work on the development of concepts, of *eide*, *Begriffe*. His version of philosophy *of* science stresses that scientificity is a quality philosophizing ought to achieve. *Wissenschaft* does not contain only empirical object-oriented assembly of data, but essentially categorical forms of self-consciousness. Such epistemology, if it is to be a progressive form of non-scholastic metaphysics, is possible only as non-formal logic.

In this respect, Hegel's possible response to the positivistic-naturalistic approach vastly differs from the three later responses of Popper, Kuhn and Quine, as it rejects any theory of science that is based, retrospectively, on (1) the mathematical methods of statistics and probability theory, on (2) Darwinist-like natural selection of scientific paradigms or on (3) epistemology as empirical psychology that reanimalizes the human thinking subject, the mind. Systematicity in science is for Hegel not a

formal condition, but a key philosophical concept which refers to the most concrete and most developed form of self-consciousness.

Notwithstanding, contemporary Hegelian literature exhibits various naturalistic readings which are not without problems. Obviously, the wrong way to attack the naturalistic claims would be to appeal to some kind of mystical spiritualism or principal skepticism about the interrelations between the natural and the mental. At the base of the naturalistic interpretation lies a problematic conception according to which there is a way to show that the mind is *essentially natural* and therefore our epistemic faculties are unfortunately empirically limited. This reading forgets that for Hegel *Geist*, as the collective self-thinking mind, went out of the limited sphere of nature and is beyond nature, that is, "infinitive". The naturalism controversy within Hegelian study reflects thus an inherent question in the gap between philosophy of science and philosophy of mind. The absence today of phenomenological approaches towards theories of knowledge and consciousness goes hand in hand with the discrediting of hermeneutical methods of text interpretation. The naturalistic interpretations insist on an insufficient common-sense understanding of central concepts such as nature, knowledge, science, spirit and idea. Future readings need be aware of distorting Hegel's perspectives while recruiting him for one's own interests; and this goes for any thinker. Hegel has often been recast to fit the needs of his readers who filter him for the things they find useful, like positivism, naturalism, historicism or pragmatism, and then throw back the rest, namely phenomenology of self-consciousness and the non-formalistic logical inquiry into the generic forms of being, essence and concept.

The outcome of this work acknowledges that the arguments of Hegel's philosophy of science are in fact an attack on the ideology of naturalism which suffers under its own premises and should be called into question. In

the future, adequate Hegel research ought not to leave so much room for the faith of naturalism in nature and in the alleged naturality of the mind. Rethinking the so-called speculative notion of science, one is confronted with the basic recurring Hegelian argument that the authentic form of true science, the knowledge *of* knowledge, should be understood as the self-knowledge of a generic subject, and not as some natural process of gathering information about the empirical world. My inquiry has intended to hint at the wide scope of this insight. With the understanding attained by this work, Hegelian philosophy of science can be seen as offering a series of relevant thoughts to this discipline today in its broad meaning, so that a historical mistake, namely not to consider Hegel as a proper or relevant philosopher of science, can be hopefully corrected in this way. The discipline called philosophy of science is still capable of coming to a new stage, not just Neo-Hegelian in name and style, but one that is truly affected from Hegel's radical metascientific deliberations discussed here. Only in this vein can Hegel be read as one of the pioneers of modern philosophy of science and one of the makers of the modern university. His fundamental thoughts on science must be taken into consideration when one thinks of the justification of philosophy of science, its history, as well as its future. Hegelian thought supplies a framework for dealing with the same fundamental problem that any theory of science deals with, namely the demarcation problem, especially the one that results from the supposedly insurmountable dualism of contemporary science and humanities.

The conclusion is that Hegel was a passionate thinker of science. Yet, his approach was not only opposed in the tradition of the so-called analytic philosophy, but also in that of continental philosophy. From Nietzsche, who took science to be principally problematic, through Husserl who criticized Hegel's overly emphasized anti-naturalism, to Heidegger's

decisive statement that “philosophy is not science”, the continental post-Hegelian philosophy has its difficulties with Hegel’s love for science and his view of science as the main reasonable institution that regulates and canonizes the truth. This critical line of thought, however, does not represent a mere abolition of Hegel’s thought or indifference to it, but, just like analytic philosophy, a kind of evolutionary approximation towards the speculative core of Hegel’s notion of scientificity in philosophy. The ubiquitous opposition has made Hegel’s original version of continental scientism essentially effective, more than one would presume. It seems that modern thinkers of science, even the postmodern Lyotard who firmly rejects Hegel’s “totalitarian” thought of philosophy as systematical science, still has to position themselves in relation to Hegel’s system.

Interestingly, the intensive secondary literature on Hegel, the ‘science of Hegel’, clearly bears witness to how philosophy investigates itself. In Hegelian terms, it expresses the self-knowledge of philosophy as a science on its own. While referring to Hegel literature, however, one should be careful not to become too philological or scholastic, like the medieval Aristotelianism, nor to blindly focus on the issue of pseudo expertise. One should not take Hegel mainly as an object of historical inquiry, as his ‘life’, that is, to analyze and compare his thought only as *his own*. Rather, one ought to deliberate on Hegel himself as a subject of thought as well, i.e. on his use of concepts and on what he really does or does not do with his words. Undoubtedly, ideal-typical ‘Hegelogists’ do not have to be Hegelians or even post-Hegelians, but they ought to be able to put themselves in such positions and to walk a few miles in such shoes. In my inquiry, the object was thus not Hegel research in historical or social terms of investigation and the intention was not to investigate all the trends and movements in it, but to show that the core argument for naturalism in Hegel is not only forlorn and hopeless, but also highly self-destructive.

Finally, although the recent laudable scholarship of Rorty and Brandom took pains in showing the pragmatic side of Hegel, the pragmatic reading should be careful not to instrumentalize the theory-ladenness of observations and to show them only as serving the satisfaction of our needs as *single* living creatures. The question of Hegel's possible response to American pragmatism should be dealt with in the future in more detail. It seems to me that, in spite of the effort of the pragmatist program, it can be especially misleading when it comes to interpretations of the main character of Hegelian philosophy of science. The manifestations of discursiveness constituted by self-consciousness cannot be said to be exhausted in mere social contacts between particular individuals, for they reflect more than that. They namely expose the transpersonal typical forms of actions that are expressed through the *Geist* as a whole, as what Hegel means by the "absolute spirit": universal forms of self-reflective knowledge.

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